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# PROCEEDINGS

OF THE

# NORTH CAROLINA DENTAL SOCIETY

## FORTY-FIRST ANNUAL SESSION

WRIGHTSVILLE BEACH, N. C.

JUNE 23-25, 1915

REPORTED BY
MISS GUSSIE LORAINE EDWARDS
NEW BERN, N. C.

RALEIGH, N. C.:
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1915

# OFFICERS AND COMMITTEES FOR 1915-'16

## OFFICERS.

| | |
|---|---|
| *President*—Dr. I. H. Davis | Oxford. |
| *First Vice President*—Dr. R. T. Gallagher | Washington. |
| *Second Vice President*—Dr. W. T. Smith | Wilmington. |
| *Secretary*—Dr. R. M. Squires | Wake Forest. |
| *Treasurer*—Dr. R. M. Morrow | Burlington. |
| *Essayist*—Dr. W. T. Martin | Benson. |

## BOARD OF EXAMINERS.

| | |
|---|---|
| Dr. J. Martin Fleming, *Chairman* | Raleigh. |
| Dr. F. L. Hunt, *Secretary* | Asheville. |
| Dr. J. N. Johnson | Goldsboro. |
| Dr. J. H. Wheeler | Greensboro. |
| Dr. J. S. Spurgeon | Hillsboro. |
| Dr. C. A. Thompson | Wilson. |

## COMMITTEES.

*Executive*—Drs. D. L. James, J. S. Spurgeon and J. A. Sinclair.

*Oral Hygiene*—Drs. J. C. Watkins, L. L. Dameron and G. W. Whitsett.

*Auditing*—Drs. P. R. Falls, T. A. Apple and C. A. Thompson.

*Ethics*—Drs. P. E. Horton, S. R. Horton and J. W. Stanly.

*Publishing*—Dr. R. T. Allen.

*Legislative*—Drs. J. M. Fleming, F. L. Hunt and J. N. Johnson.

# PROCEEDINGS

The North Carolina Dental Society assembled in its forty-first annual session in the assembly room of the Seashore Hotel at 8:00 P. M., and was called to order by the President, Dr. J. A. Sinclair, of Asheville, N. C.

Prayer was offered by Dr. B. W. Spillman, General Secretary of the Southern Baptist Assembly.

The Secretary called the roll of members.

The President introduced Honorable Iredell Meares, of Wilmington, N. C., who delivered the address of welcome as follows:

*Mr. President and Gentlemen of the North Carolina Dental Association*:

I do not know, gentlemen, that I feel quite positive or sure of myself tonight, but I know that I have the pleasant duty to perform of welcoming you to these shores and to this city. However, I am somewhat in the attitude of mind of the New England farmer, who was quite nervously hitching up his horse one day, when his wife asked him: "William, where are you going?" "Why wife, I am going to town to get drunk, but I hate it." That is the way I feel about this. I am not sure of myself in undertaking this speech, because, in the last three months, my incisors, I guess you would call them, have been undergoing a readjustment and replacement of bridges. Crowns have been completed and bridges repaired. In the meantime, while the dentist was building his bridge, I was building a bridge of sighs. and I do not know that I have my articulation in shape. If you presume to criticise, I pass it to Dr. Patterson to make the criticism and will stand by the criticism that he sees proper to make.

It is always pleasant to extend to you a most hearty welcome. If the process of welcoming you was not indulged in, we might lose something of the spirit which prompts it, though I am sure I can extend to you a hearty welcome from the dentists of our city. I know that these men exercise and are exercising in our community a broadening view of life, and for these reasons we are glad to have you in our midst.

I regret that I have not been able to resurrect a speech that I delivered to the Dental Association twenty-five years ago. I discovered, in picking up the proceedings of the meeting of 1890, that Mr. Meares delivered a most amusing and interesting address of welcome to the Dental Association. If I had read that before, I never would have undertaken to have spoken tonight, for I never repeat the experiment when I have been a success. I know it must have been a great speech, because the Secretary would not have said so otherwise. I hunted it today, thinking I might reproduce it tonight, but regret to relate that it was a case of "Rebecca weeping for her children," looking for them and not being able to find them.

I remember a little occurrence that happened when I was delivering a speech quite a while ago. I was delivering, what I thought at that time, was a political speech. There was a fellow eyeing me pretty closely. As I stood on the platform and said, "Fellow citizens," I noticed the fellow walking up the aisle and holding out his hand. He had been looking for me quite a while. He had measured me up apparently. He stepped up to the platform, and I paused for a few minutes, not knowing what the man intended to do to me. He walked up to me, held out his hand and said, "Shake, by G—d, I don't know what you are going to say, but I know it's right before it comes." That was the most cordial welcome I ever had.

Gentlemen, I want to congratulate you on the splendid achievements of your profession. I doubt if any occupation has been as completely revolutionized as the practice of dentistry. It is particularly gratifying to know that in this achievement the American dentists have been leading the world. I heard a distinguished missionary, not very long ago, entertaining an audience by telling the kind of dentistry practiced in Africa. When they wanted to pull a man's tooth, they would strap him to a log and, when sure of his position, they tied a heavy string around his tooth and tied the other end of the string to a bent sapling, then they would let the sapling go and the tooth would come out.

I recall very vividly the first time I went to the dentist to have my teeth looked after. I guess we all remember the first time. It seemed to me that the two most important things the dentist possessed was a big negro and a mallet. I remember a dentist in New-Bern once put an amalgam filling in my mouth. That old amalgam filling stayed there for twenty years. It was like the rock of Gibraltar. All the teeth around it dropped out, but the tooth with the amalgam filling stayed there. It stayed there until Dr. Patterson leveled it to the ground. I recall another delightful experience of mine. I look back to the days when every dentist had a darkey and a mallet, and when he was plugging a tooth there was a signal code between the dentist and the darkey. When he tapped the instrument, he would produce a tune. If he wanted to go rapidly, it was probably Dixie or Yankee Doodle and if he wanted to go slow, it was Old Black Joe. If some of your dentists would take a needle of a Victrola and put in a cavity and go around the cavity, I think you could produce a sound like those of the old days, propably of "Captain Jinks."

It is a marvelous thing when one recollects the manner of destroying nerves thirty years ago and the manner in which it is done today. I never will forget my experience some years ago when the doctor would move all around in the tooth until he got the covering rather thin, then he would call his boy and he would hit it a hard lick—well—it was all over in a minute; that was the only consolation. You see I have always been more or less sympathetic and in touch with you, as a patient. I have a very great admiration for some of the personal achievements of the dentists. My experience has been limited to just a few gentlemen, I won't call any names, but it seems to me that no profession in the world is any greater than that of dentistry.

You have done a thing that six million Democrats and William Jennings Bryan could not do. You can plug a man's tooth with gold and plug a man's pocket book with the same ratio, sixteen to one. I think that is quite an achievement. I think it takes a high order of mentality to perform two operations—filling in an excavation with gold and excavating a man's pocket book at the same time.

After all, I am here, charged with the duty of extending to you, on behalf of your brother dentists of Wilmington, on behalf of our people, a welcome to this hospitable shore and a welcome to our city. I can not present you with the keys to the city, because down in this old Cape Fear section, where we don't have any war time, we don't need any gates and doors to bar you, therefore, no necessity for keys, just an open field in which you can walk and trespass to your own pleasure. I hope you gentlemen will find your visit here profitable as well as pleasant, and that you will all go away from our "City by the Sea" with a feeling that it is an important one in this good old state of ours. These meetings tend to draw together the people of the state and make us realize the importance of each other's professions. I am glad to have been able to have welcomed you today. I can throw open to you the hearts of the people of Wilmington and ask you to command them in any way that you desire and I assure you that you will have only to command.

The response to the address of welcome was made by Dr. S. R. Horton, of Raleigh, N. C., as follows:

*Mr. President, Fellow Workers and Ladies:*

It is with pleasure that I stand before you tonight to speak in behalf of our Society. It is not often that a dentist is willing to place himself in the hands of a lawyer, but I am glad to say that we are glad to place ourselves in the hands of Mr. Meares and his fellow citizens.

With the roar of the surf in our ears and the fruit of the surf in our stomachs, we feel amply able to undertake what is before us, and we heartily accept your welcome, Mr. Meares. There are several reasons why we enjoy being here, but Mr. Meares, "Rebecca weeping for her children"—I suppose there are a great many of our dentists here tonight who have children, but they are not weeping for them. Some of them, I imagine, are dancing the latest dances at your dancing pavillion on the beach, so you see they are not weeping for them. We want to say that we accept your kind hospitality in the same spirit in which it is given. We are glad to have come to a city that we can enjoy ourselves as well as work. This is the only city by the sea. There are some of them referred to as cities by the sea, but this is the only city we have that is really by the sea. We are delighted to be here and we will take every opportunity that is placed before us to enjoy ourselves. It has been four long years since we were here before, not because we found this city less attractive than other cities, but because we have a great many other attractive cities in our state and we feel that we want to get acquainted and get in touch with people all over the state, but we assure you that we will return to your hospitable and beautiful city at our earliest opportunity.

Upon motion of Dr. J. S. Spurgeon, of Hillsboro, the reading of the minutes of the last meeting was dispensed with.

First Vice President, R. T. Gallagher, of Washington, being called to the chair, the President delivered the annual address, as follows:

*Members of the North Carolina Dental Society, Ladies and Gentlemen:*

It was no small, nor insignificant honor, that was evidenced by my associates when I was elected President of the North Carolina Dental Association. This distinction was accepted with a full appreciation of its responsibilities, and with the determination that the best of my effort would be directed toward the interest of our Association. I am not unmindful of the duties and responsibilities that accompany the honor, but without the support of a loyal membership, it would have been impossible to have accomplished satisfactory results. And at this time I wish to express my sincere appreciation to the officers, committees, and the individual members for such assistance as they have rendered. We meet together, not as practitioners of dentistry only, but as men interested and concerned for the betterment of civic conditions. We came to discuss not only practical ways and means of following our profession, but also to study those questions which concern the conservation of public life and health.

Our work is not alone for our own immediate locality, but it is for the whole country, and not only for the country, but for the world, because this country leads all other countries in the world in its progress in the profession of dentistry; and in this we should take an especial pride, for just as we are apt to look abroad for leadership in medicine and surgery, the rest of the world looks to America for leadership in the field of dentistry. They look to us for the ideals and we make the ideals. The work that we do is sometimes wearisome, just a pure labor of love, but as has been well said: "Our work is our religion and our religion is our work." We do not only work for the money that is in the profession, although that is absolutely necessary, but there is a far higher aim in this Association, and that is the preservation and conservation of public health and life.

The maximum strength of our Dental Association is wholly dependent upon the concerted effort put forth to not only maintain the present interest, but in every possible way to stimulate and increase this interest. The development of this maximum strength makes possible the conserving of those professional ideals which are worthy of retention; the advancing of our standards, in order to keep pace with healthy progress; the encouraging and supporting of officers, committees and those who contribute to our program, as well as those qualified to do scientific research work; the fostering of fraternal spirit and the broadening of the individual. All of these are things worth while, and only made possible through efficient and well managed organizations.

The officers, more than all others, will be held responsible for the development of the Association into a strictly representative, harmonious, co-operative and influential Association which will make possible the advancement of our profession, thus assuring a more efficient service to afflicted humanity.

Dentistry as a profession can claim a history of only three-quarters of a century. Much progress has been made during this period, but the first decade is especially noteworthy for its achievements. The present decade, of which we will assume this is the fifth year, should be productive of such development and progress as to make this surpass any former two decades in the history of our profession. The bringing together of the organized profession of our country, whereby it will be possible to accomplish results which have heretofore been considered impracticable, is the achievement that should meet with the general approval and the loyal support of all interested in our advancement.

The work of the Research Committee is an evidence of what can be accomplished through a concerted effort backed by an effective organization. If I mistake not, the closing decade will see more advancement than many of us would even think of prophesying at this time. The fact that the medical profession, health and educational authorities, civic and philanthropic organizations, as well as the laity, are looking to us for co-operation and relief, prompts me to say that we must appreciate our responsibilities and improve our opportunities.

As President of your Society, I wish to thank the Legislative Committee for their untiring efforts and I wish to say to the Society that they made no mistake in appointing Dr. Davis, Dr. Hunt and Dr. Johnson as their committee, for they have secured the passage for one of the best, if not the best, dental laws in the United States. I wish also to thank those who assisted the committee.

The North Carolina Dental Society should congratulate the Research Commission of the National Dental Association. They have given us, as a result of this work, information that can not be repaid in dollars and cents. The Research Commission deserves the cooperation of this Society, and I would recommend that a committee be appointed to work in conjunction with the commission in rendering them assistance in their research work. I would recommend that we render financial aid. In the last financial report of the commission, North Carolina was among the four states that had not contributed.

The reorganization committees have secured for you a most interesting clinic. I wish to commend this committee on its selection, especially the clinecion from among our own members. Professional clinecions are of the utmost value to us, but among our own members we have material that copes with the best. We must develop our own talent to such an extent that the world outside will send to North Carolina when they wish a clinecion of the first rank.

The following committee was appointed by the First Vice President to report on the President's address: Drs. J. H. Wheeler, J. C. Watkins and J. W. Stanly.

The Essayist, Dr. J. A. McClung, of Winston-Salem, N. C., then read the Annual Essay, "The Personality of the Dentist in Relation to His Reputation and Success."

*Mr. President, Brother Members of the North Carolina Dental Society, Ladies and Gentlemen:*

It was indeed a great surprise to me when I learned that I had been chosen as your Essayist at this, our annual meeting. It affords me great pleasure this evening in coming before this audience of distinguished practitioners and friends with the essay I have chosen: "The Personality of the Dentist in Relation to His Reputation and Success."

Every dentist, whether a general practitioner or a specialist, discovers sooner or later that the practice of dentistry has two sides: A scientific side which embraces his scientific knowledge, skill and art, and a lesser, but important, personal side, and in order to fight the battle successfully it is very necessary for even the most scientific and skilled dentist to possess a certain amount of professional tact and business sagacity.

There are gentlemen in the ranks of our profession who possess practically all the scientific knowledge pertaining to dentistry and who are skilled and artistic operators, who, nevertheless, after earnest trial, have failed to achieve reputation or acquire practice simply because they are deficient on the personal side and lack the professional tact and business sagacity that would make their other qualities successful.

No doubt the question that confronted me has confronted many young practitioners: How can I conduct myself in the profession, and what honorable and legitimate personal means shall I add to my scientific knowledge and skill, in order to make my success in the great professional struggle more certain, more rapid and more complete?

First, last, and at all time we should as men and as dentists found our expectations of success on our personal, scientific and technical qualifications, and keep whatever is true, whatever is just, and whatever is pure, foremost in our minds and be governed by it.

Unfortunately, the young men of our profession are often looked upon as being too young and possessing little experience. If you are young, face them all bravely. It is better to have a future than a past. Never doubt; but with stout heart, cool head and ready hand show the world that you have a good head upon your young shoulders and skillful fingers upon your young hands, and that you deserve to succeed and success will surely come. Industry and enthusiasm, with strict attention to opportunities that will present themselves for winning confidence in patients that are incidentally thrown into your hands, and a diligent cultivation of your talents, with courtesy to all, rich and poor alike; with pleasant manners, but no time to gossip will surely bring it. The best introductory letters and testimonials you can have will be your own success founded on individual effort and determination. Even a single patient requiring only a simple operation often gives you an introducetion to extensive business.

If you are located in a city or town, the location and appearance of your office will, more or less, affect your progress; and you will do well to select one easy of access with a neat clean entrance or else where there is good elevator service. Your reception room should be cheerful and comfortable and you should exercise special care in the arrangement and make it look fresh, neat and clean. Let the essential features show that the occupant is possessed of good breeding and cultured taste. Your operating room should be the pride of your office, with the very best equipment money will buy. The color scheme should be particularly carried out in this room, always remembering "cleanliness." Not only have your instruments sterile, but your chair, cabinet, engine, walls and floor should be as clean and bright as new. Special care should be exercised in the removal of blood, instruments, soiled linen, cotton rolls, rubber dam, strips, impressions and all other such things before another patient is allowed to enter the operating room.

The office should not present the appearance of an instrument maker's shop, a smoking club's headquarters, and a general loafing place for the idle; but the office of an earnest working, scientific dentist.

By all means do not display a miniature museum of stuffed alligators, birds, or anything of the kind found in museums. During my college days I was engaged by a dentist who had his office filled with such things, and I often wondered what the patients thought when they entered that office. If you have a natural love for such things, at least keep the fact private and keep your specimens out of your office and out of sight of the public and endeavor to lead patients to think of you solely as an earnest, scientific and skillful dentist.

Public opinion is the supreme court. You will be more esteemed by patients who call at your office, for any purpose, if they find you engaged in your professional duties and studies, than if loafing, conversing over the telephone in social conversation and even reading the newspapers at times proper for business; all have an ill effect on public opinion, which is the creator, the source of all reputation, whether good or bad, and should be respected; for a good reputation is a large, a very large, yea one of the chief parts of a dentist's capital.

Establish a regular professional and business policy. Be in your office as punctually as possible and keep your office hours. Avoid as far as possible making your patients wait for you after the hour for their engagement is up. But insist that they be on time. You must realize that their time is usually considered valuable as well as your own. Absence from your office when needed, especially during office hours, particularly if away, for sport or pleasure, is a fruitful source of loss of practice. If on the contrary, you are found when wanted, people will credit you with industry, regularity, and long-winded determination to succeed in your profession, which cannot fail to advertise you and bring you patronage.

Still more important to success will be the morals of the companions you make in your early career; in fact all through life a dentist is judged by the company he keeps. You cannot separate yourself as a dentist from what you are as a man, and, an unspotted, honorable name is the only thing that can render your life happy and enable you successfully to withstand the critics, for neither you nor any other dentist, can long lead a double life or afford to despise public opinion and especially the female portion of it, with eyes like a microscope, who will take notice of your associations and of a thousand other facts regarding you. In fact, every circumstance in your appearance, dress, manners, actions, walk, speech, conversation, habits and where you are to be found when not professionally engaged, will be closely observed and criticized in order to arrive at a true verdict. Therefore, break but one thread and the web you will mar.

The question may never be asked whether you were graduated from this or that University in the North or in the South, in the East or in the West; but it will be: Is he a modern, scientific, skillful and reliable dentist?

The best reputation a dentist can possess is that acquired by a display of real talent of worth. If one is tossed into reputation which is not merited, he will be out of place and ill at ease with his fame and will surely sink again to his true level. Even if you acquire merited reputation for distinguished abilities and desire to sustain it, you must still work hard, for a great reputation is a great charge.

Dentists should cultivate the true art and spirit of professional manner and deportment. Most of your usefulness and comfort will depend upon it. But do nothing to gain popular favor that does not accord with both the letter and spirit of dental ethics. It would not pay to trust, for business, to tricks of any kind, for the evil that covers such methods is generally too thin to hide the motive or to turn ridicule aside.

By all means, fellow practitioners, be honest, be fair, be just and deal conscientiously with each and every patient, and always be courteous to your fellow practitioners. If a patient of one of your competitors comes under your care, and your competitor has done conscientious work, you will have no room to criticise him. If you cannot praise it, then it is far better to say nothing.

If you are conscious of any superior aptitude or intellectual power, or are ahead of your brother practitioner in any essential quality or eclipse him in talent, methods or experience, let mere matters of display remain secondary, and depend chiefly on your merits for success. This is more durable and more in harmony with the views of sensible people, and will unfailingly help you in climbing toward the top, and, when you get there, will be the surest means to keep you there, because, if true to yourself your object you will gain.

But remember, intellect, skill, temperance, correct personal habits, and other excellent qualities will all fail to make you successful, unless you add ambition, self-reliance, and aggressiveness to them, because, to deserve success is the surest way to attain it.

The President appointed the following committee to report on the Annual Essay: Drs. C. A. Thompson, J. H. Wheeler and W. T. Smith.

Dr. J. S. Spurgeon, for the Executive Committee, read the following applications for membership and they were duly elected:

R. C. Weaver, Weaverville.
J. R. Edwards, Cary.
F. B. Netherland, Asheville.
H. C. Carr, Wallace.
R. Weathersby, Wilmington.
J. F. Williamson, Clinton.
E. R. Warren, Prospect Hill.
G. C. Haynes, Cliffside.
M. P. Manning, Robersonville.
J. A. Yarborough, Wake Forest.
R. H. Murphy, Mebane.
C. A. Boon, Rocky Mount.
C. E. Edge, Rocky Mount.
F. H. Underwood, Roseboro.
E. L. Edwards, Asheville.
L. M. Humphrey, Greensboro.
J. F. Coltrane, Zebulon.
D. D. King, Lumberton.
W. F. Yates, Chadbourn.
E. A. McMillan, Hendersonville.
A. A. Lowry, Asheville.

After an announcement by Dr. J. M. Fleming about the clinics for Thursday morning, the Society adjourned till 9:00 o'clock Thursday morning.

### THURSDAY.

Morning and afternoon session devoted to Post-Graduate Progressive Lectures and Clinics.

(See Appendix, page 65, for full report.)

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### THURSDAY—EVENING SESSION

The Society was called to order by the President at 8:30.

The following applications for membership were reported and elected:

C. R. Hutchisson, Walnut Cove.
C. R. Riddick, Ayden.
J. F. Stainback, Wadesboro.
B. H. Webster, Madison.
W. D. Gibbs, Fayetteville.
C. L. Inman, Mt. Airy.
J. M. Gardner, Gibson.
A. M. Schultz, Greenville.
A. G. Holmes, Jr., Southport.

The following gentlemen were elected to honorary membership, upon the recommendation of the Executive Committe: Drs. Clinton C. Howard, of Atlanta Ga.; Alonzo Milton Nodine, of New York, and E. G. Quattlebaum, of Columbia, S. C.

The President presented Dr. Chas. R. Turner, of Philadelphia, who made the following introductory remarks, before presenting a paper on "The Present Status of So-called Anatomical Articulation":

"My heart is full of love for you because you have considered me one of you, though I have left you in body, but not in spirit. I consider it a great pleasure to come here and be with you. It is indeed a labor of love to participate in contributing to your program."

# THE PRESENT STATUS OF SO-CALLED ANATOMICAL ARTICULATION.

BY CHARLES R. TURNER, D. D. S., M. D.

In asking your attention to a consideration of the present status of the anatomical articulation of artificial teeth, I am impelled so to do by the recent strong awakening of interest in this subject on the part of dental practioners all over the country, and by my desire to overcome as far as I may be able some of the reluctance to undertake this work which its prospective difficulties so often arouse.

I feel sure it is not necessary at this time to advance arguments to convince any one of the great desirability of establishing a satisfactory so-called anatomical articulation of the teeth of all full dentures (employing this term to denote in a general way that arrangement of the teeth which assures their greatest functional efficiency), nor of the great service which may be rendered to edentulous patients thereby. The fact that this method has not become universal in practice has not been due to any failure of belief on the part of the profession in its ultimate value, but may be attributed to a number of reasons which are easily understood. As viewed by the average dentist. one of the chief deterring influences has been the real difficulties of the work which have been greatly multiplied by the incomplete state of knowledge upon the subject. Such knowledge as existed was not completely systematized. Uncertainty of result and great confusion resulted from this lack of the complete working out of the problem. Each worker met difficulties which had never before been solved and was in a measure a pioneer in the field. A large number of men have participated in the elucidation of this intricate and difficult matter, but it is only comparatively recently that anything like a complete solution of this "complex engineering problem," as Gysi has been pleased to call it, has been reached. Now that this is true, the difficulties incident to confused and unsystematized facts relating to the matter do not complicate its study, and the student has only to concern himself with the mastery of its underlying principles which have now been pretty well made out. While it is true that these are instrinsically difficult, it is now not even necessary for one to understand fully all of the basal fundamental principles, as a technic has been worked out whereby very satisfactory results may be secured simply by an acquaintance with the details of the technic. This technic is no more difficult than that of hundreds of operations which the dentist is called upon to do in ordinary routine and so the early drawbacks have been largely eliminated and this objection no longer obtains. It might be well, however, in this connection, to add a quotation from Bonwell, who said, "I am asked by all, 'Is it necessary that I know all these drawings, and your laws in order to use your articulator, without which you tell us no artificial teeth can be properly mounted?' No; my boys, yet it is well to master them for the culture in their study and in the love you will afterward have in the practice of our highest of arts and mechanisms, and it will not have been work in vain."

The lack of general demand on the part of the public for dentures of this type has undoubtedly had its influence in retarding the extended employment of the method. Of course this was due to their lack of information upon such matters, and until recently the chaotic state of knowledge upon the subject and the frequent poor results did not encourage the dentist to broadly disseminate information on the subject. The dentist is always the first to promulgate new beneficial ideas among his patients and it is only after considerable work on the part of the profession that a demand for such work arises from the public.

Speaking broadly, the lack of willingness to pay a fee commensurate with the time and skill necessary to produce dentures of this character, has also discouraged the general employment of the method. This has been entirely justified by the uncertainty of results, but it is the history of all such matters that so soon as the benefits of a superior service can be fully established and amply demonstrated, the public demands the service at a commensurate fee. Under present conditions of technic the time element has been so extensively reduced by reason of the elimination of uncrtainty and the formulation of definite rules of procedure, that even with a superior result less time is consumed now than was formerly required in utilizing the incomplete knowledge and unsatisfactory materials and appliances then available.

I feel sure that all will agree that I have given a fair statement of the conditions existent ten or even five years ago. A great deal of activity has, however, occurred in this field within the past few years and while we by no means feel that the last word has been said upon the subject, it is entirely justifiable to say that the principles underlying this work have now been sufficiently worked out to give us satisfactory results in practically every case.

The development of the science to its present status has been by a long and gradual process. Undoubtedly the chief factor in this has been the increase in our knowledge of the construction, mechanics and physiology of the natural masticating apparatus itself. The movements of the mandible during mastication have become better understood and instruments have been perfected by which these movements may be recorded. The articulator has been developed into a satisfactory means of reproducing these movements and has almost become an appliance of scientific precision. Another most important factor in the problem has been the forms of the artificial teeth themselves, but these we may regard as practically settled. The molar and bicuspid teeth which have chiefly to do with the functioning of the denture have in the past been of designs little related to their purposes, although this is partly due to the fact that what should constitute their forms had not been agreed upon by dentists themselves. The difference in the conditions under which they operate has always made a fundamental difference between them and the natural teeth they replace. To closely imitate nature is impossible, although it has been only by a more complete understanding of the forms and arrangements of the natural teeth that artificial teeth have been designed to do the same work under the different conditions. The need for conserving the stability of the plates, indeed of promoting it, has necessitated consideration in conjunction with their functional purposes. Gysi has determined with scientific precision the forms of molar teeth which will answer these requirements and they are now being manufactured and are on the market.

But as we have said the present state of perfection of the science has been reached by a slow process of evolution and it will prove useful to us to note the steps by which it has been accomplished. These stages naturally divide themselves into four periods, which will become evident as we proceed.

1. The first period was that in which contact of the teeth in their occlusal position was all that was secured. It was not even occlusion of the teeth as we know know it, because little idea of the interrelation of the cusped surfaces existed, and even until a very recent date artificial teeth were of such poor patterns that only a very poor interdigitation was possible. The casts were held in occlusal relations to each other by plaster extensions and the teeth were merely arrangd in contact, the upper with the lower.

The invention of the articulator attributed by Guerini to Gariot in 1805, provided an instrument of a hinge-like character, which merely served as a convenience in arranging the teeth in occlusion. No thought was probably in the inventor's mind of an imitation of the human joint mechanism. At any rate the device was only useful in maintaining the occlusal relations of the casts. During this period the occlusal surfaces of the teeth and their relations to each other bore little similarity to the natural organs and their value for mastication arose solely in their ability to strike each other in the closing movement of the jaw.

2. So far as dental literature serves to record the facts, to Bonwil must be given the credit for having done the first work in the effort to imitate the motion of the mandible in an instrument, and of shaping and arranging the teeth in order to establish their functional relationships during the masticating movements. He realized that mastication normally included something more than the up-and-down motions of the mandible, and sought to have functional contact of the artificial teeth in the forward and lateral movements, using the term "articulation" in contradistinction to "occlusion" to de-

note these new functional activities. His articulator was invented in 1858, though his methods were not published until 1878, a good many years later.

Bonwill's conception of the lower jaw, as based in form upon an equilateral triangle of four inches to the side, is familiar to all. His articulator was constructed upon this plan and the casts were set upon it with the mid-line four inches from each condyle and their occlusal planes parallel to its bows. Bonwill altered the molar and bicuspid teeth he used by grinding a deep groove between the buccal and lingual cusps and reshaping the latter into ridges. This groove between the ridges formed with them an ogee curve. In the lower teeth the outer ridge was low and rounded, the inner was sharp. In the upper the forms of the ridges were reversed. He said that the normal everbite of the incisors was about one-eighth of an inch and that the length of the cusps decreased proportionately to this as they extended backward. The anterior teeth were set up in the arc of a circle, while the distal teeth ran in straight lines backward from the canine toward the condyles, as they are viewed from their occlusal surfaces. Viewed from the side the ten anterior teeth occupied a horizontal plane, an upward curve of the distal teeth beginning at the first molar "to permit all the surfaces on one side to be in contact while the other unused side is only partially so." Bonwill said that they should touch on both sides "in order that the muscles of both sides should act equally," thus "enabling them to keep the largest proportion of surface always presented for mastication" and because the dentures were supported against dislodgement. He said that the distal cusp of the second upper molar should be cut off to allow the other side to touch in the lateral excursion and thus balance the denture. and that the lingual cusp of lower first bicuspid should be removed because it had no function. All the buccal and lingual cusps were to touch on one side, but there was only partial contact on the other side.

"The incisors never touch in the lateral movement." In the forward movement when the incisors were in the edge-to-edge relationship, the upper second molars were touching the lower second molars, thus establishing his three-point contact often referred to.

The chief defects of Bonwill's system, as applied in practice, arose from the defective design of his articulator. The condyle paths of his instrument only slanted downward the amount produced by the opening of its bows and he had no means of accurately locating the casts upon it. But to Bonwill must be accorded a great place in the history of scientific tooth articulation, for though his observations were incomplete and his deductions in some cases erroneous, he enunciated principles which persist today and for a pioneer work it was a wonderful effort. The principle of bilateral contact in the side movement of the mandible, the three-point contact in the protrusive movement, the relationship of the cusps in these movements, the curve of the occlusal surface and the proportionate height of the cusps from before backward, have all been splendid contributions to this science. The improvements that have occurred since his time have been due largely to our broadened conception of the masticating mechanism and have not materially altered the principles of artificial tooth articulation enunciated by him.

3. In the period intermediate between Bonwill's era and that of the present, numerous isolated contributions of importance were made. Some of these which have a direct bearing upon our ultimate methods must be referred to in some details, while others, only interesting historically as being stepping stones in the path, need not be described, nor can they be mentioned chronologically. Various investigators have, during this period, enlarged our knowledge of the mandibular movements, notably Constant, Campion, Tomes and Dolamore. Others have devised articulators with an average downward slant for the condyle paths as Gritman and Weiss have done. Another articulator with adjustable paths, which exhibits the axis of opening on a level with the occlusal plane has been designed by Kerr. Parfit designed an instrument with condyle path cut out of sheet metal to follow that traced for the case in hand. Schwartze and Frank also designed instruments; Weiss, Gritman, Morrison, Davis, Cross, Clapp and Ulsaver have all made observations relating to methods of tooth articulation.

Although the condylar paths had been noted to have a downward as well as forward course by Luce in 1889 and by Spee in 1890, it was Walker who, in 1897, first directed attention to the significance of these movements in prosthetic work. He conducted a series of experiments to establish this fact and upon them as a result constructed an articulator capable of adjustment to the recorded paths of individual cases. His facial clinometer was an instrument by means of which he determined the angle made by the path of the condyle with facial line. The instrument was complicated and never came into general use. Walker also noted the fact that the condyles were not always the centres of lateral rotation and remarked the backward movement of the condyle on the side towards which the excursion was taking place. He also noted the fact that in the opening movement the centre of rotation was not in the condyle and constructed a fulcrum on his articulator to simulate this motion of the human jaw. He did not attach great practical significance to these last mentioned facts. His tooth articulation by grinding was largely an adaptation of Bonwill's method, though he gave the teeth the slightly different form and arrangement necessitated by the motions of the new articulator. The upper distal teeth were cut with a progressively larger and wider inner ridge, and narrower and shorter outer ridge from 1st bicuspid to 2nd molar, to represent the lingual and buccal cusps respectively. The corresponding lower teeth had this arrangement of cusps reversed. The teeth were set up with an overbite proportional to the cusp length, with the distal teeth occupying a curve similar to that of natural teeth, and capable of balancing the dentures in the forward excursion. The downward descent of the condyle in lateral movements necessitated a progressive raising the level of the buccal cusps over that of the corresponding lingual cusps to balance the dentures in this movement.

Two notable contributions have been made by Snow and Christensen. The former called attention to the necessity of placing the casts in the same relationship to the joint mechanism of the articulator as the jaws they represent occupy in relation to the temporomandibular joint. The Snow face-bow is the effective instrument designed for this purpose.

Christensen devised the first simple method of securing a record of the paths of the condyle in their forward movement. The method was suggested in conjunction with the use of his articulator which was equipped with condyle paths adjustable to any angle. His well-known method is to first mount the casts upon the articulator in correct relationship with its joint and in proper occlusal positions. The bite-plates are then removed, returned to the patient's mouth and a record of the forward bite, that is to say of the relationship of the jaws in the protruded position of the mandible, is obtained by having the patient bite into soft wax placed between the bite-plates with the jaw in a protruded position. The relationship of the bite-plates is preserved by fixing them together. The upper bite-plate is now located in place upon the upper cast, and with the joint mechanism of the articulator loosened, the lower cast is moved until it fits into the lower bite-plate and the various set screws at the joint are tightened. This adjusts the condyle paths of the articulator which are free to rotate about a horizontal axis so that they extend between the two extremities of the condyle paths, and their position is now fixed to accord with those of the case in hand.

Snow has adopted this method for use with his New Century Articulator, an instrument with adjustable condyle paths introduced about 1907. This articulator in conjunction with the Snow face-bow has has been and is one of the most useful appliances at our disposal. It is sufficiently nearly a reproduction of the jaw mechanism to give satisfactory tooth articulation in a high percentage of cases.

The methods of tooth articulation during this period have been practically those of Walker, though they have been slightly varied by individual workers. Their form has been obtained by grinding, though latterly several types of anatomical molds have been placed on the market. While these, in some instances, have been improvements over the former entirely useless patterns, and have required less grinding. their forms have been either attempts at copying natural teeth or merely emperical patterns and have not been satisfying.

Two methods of arranging the teeth for balancing the dentures are worthy of note. First, that of Wilson who modifies the step arrangement often observed in natural dentures by slanting up the second molars from the flat plane in which he arranges all the other teeth, and thus secures a three-point contact in the lateral and forward excursions. Eltner omits the second molars and arranges planes of vulcanite which permit by their contact the support of the dentures while food intervenes either in the incising or masticating relation. He thus solves what he calls his "beer pretzel problem."

4. Gysi's work, published by Hirschwald in Berlin in 1908, an English translation of which with additions appeared in The Dental Cosmos in 1910, and the results of his labors since then published in The Dental Digest in 1913, and latterly described by Clapp in his book, "Prosthetic Articulation, 1914," has been the greatest contribution to this subject yet made, not even excepting the pioneer work of Bonwill.

Gysi's efforts have covered the entire field involved in this problem. First he has supplemented our knowledge of the mandibular movements by carefully made observations of his own. He has constructed an articulator capable of imitating these movements and capable of adjustment to individual differences between them. This he has designated his adaptable articulator. Furthermore he has devised measuring instruments for the recording of these movements and the means of adjusting the articulator to the records obtained. He has demonstrated mathematically the influence of the several variable factors upon the forms of the teeth and their arrangement. He has designed artificial teeth scientifically as a result of this determination of their form, and now they are obtainable suitable for all cases. He has endowed them with cusps, each one of which has a definite purpose in the working out of his ideas. And finally he has promulgated simple rules for their arrangement and devised an automatic scheme of articulation in which they are made to take their correct locations by simply pressing them into position in soft wax by moving the articulator.

Beside the downward and forward paths of the condyles, for a record of which Gysi employs a measuring instrument with which this path is scribed upon a card held upon the side of the face. Gysi has taken cognizance of their lateral paths in the lateral excursion of the mandible, and his articulator can be adjusted to reproduce them, and a measuring instrument records them for the case in hand. Norman G. Bennett directed attention to these movements and Gysi demonstrated their existence and their significance, and devised methods of recording and reproducing them upon his instrument.

Gysi also worked out the significance of the rotation points of the jaw in its lateral excursion. These are the centres of rotation in the lateral movement which have been demonstrated to be not always in the condyles, and often outside them. His articulator has individually changeable rotation points, and his method of recording or locating them enables one to determine them for each case. He has added an incisor bite-guide. The location of the casts upon the articulator in correct relation with its joint mechanism is done with the large measuring instrument.

Gysi's experiments show that the average slant of condyle path downward is 33°, that its inward path is about 16°, that the rotation points vary from 7 c. m. to 13 c. m., but average 10 c. m. or 4 in. apart, and that the incisor slant is from 50° to 70°, with an average of 60° in natural teeth, but can not be so great in artificial teeth, so thinks 40° best.

He has devised a simplex articulator based on these average measurements, which he says will answer requirements in about two-thirds of cases.

One of Gysi's chief contributions is in the scientific determination of the forms of the molar and bicuspid teeth. In order to realize what this problem was and of how much value its solution is, we must remember that after teeth have been perfectly articulated on Bonwill's instrument "better than God Almighty himself articulated them," they did not often articulate correctly in the mouth. The reason was that the articulator did not accurately reproduce the various movements of the mandible of all cases. In fact the teeth articulated exactly in the mouth only when that particular mouth corresponded in all details with the articulator's design and with the chance location of the casts upon it. Also it must be remembered that when teeth were ground for setting up upon an articulator, even of correct design, that the forms they should have were only approximately made out and they could not be given their final shape in advance. As each tooth was fitted in, it was usually necessary to change it to adapt it to the case in hand and this was done entirely empirically. Gysi showed what effect each one of these variable factors has upon the forms of the teeth and has demonstrated which of the factors is important and which negligible. He worked this out first for the grinding of teeth and later has designed teeth with cusps and fossae instead of ridges. The occlusal surfaces of these teeth exhibit also small ridges and grooves upon the cusps and fossae themselves which he has designed for actually grinding the food.

As the incisors and canines whose labial faces have been designed by Williams in collaboration, he shows that only the slant of the lingual surfaces of the upper teeth, the amount of the overbite and the facets on their cutting edges, or in other words their functionating surfaces, are details requiring attention. The facets are already made or need to be slightly ground, those of central and lateral incisors being about 30° and 20° respectively, that of the canine only about 10° to 15°. The upper canine has a long mesial and short distal cutting edge, the lower canine having just the reverse. The lingual surface of the upper natural centrals have a slant of 50°—70° with an average of 60°, the lateral 10° less, the canine 20° less. He says that artificial centrals should slant about 45°.

The overbite with his system is greater than with any other because of the influence of the incisor bite-guide. It may be arranged greater when the rotation points are close together, becoming less as they are farther apart.

Gysi has shown the effect of the condyle slant, its lateral path, and the rotation points upon the forms of the molar teeth. The details of their form to which this relates are the angle of the mesiodistal groove between the cusps, and the relative width of the cusp surfaces. Briefly speaking, the greater the condyle slant the greater the angle of the masticating groove, and the closer together the rotation points are the greater the angle of the masticating groove; also the greater the angle of the lateral excursion the shallower the bite of the molars. As a fixed incisor guide is used, this factor is not related to the variations. He shows also that the greater the condyle slant the more nearly equal in width become the buccal and lingual surfaces of lower molars, varying from a proportion of 2 1-2 to 4 with a slant of 20°, to 4 to 4 with a 40° inclination. The reverse is true of the upper molars.

Williams, in referring to the bicuspids of this series, says they are not simply little molars;" their functions are to catch, hold and crack brittle foods, and to pierce between fibres which have been placed along them and are being held by the sliding articulation of cuspids and molars. Bicuspids can discharge these important functions only by exhibiting an opening and closing articulation while the cuspids and molars are in sliding articulation." This gives a new conception of the function of these teeth and the method of articulation carries out this idea.

In regard to the form of the arches Gysi says: "Incisors and canines of tooth arches form part of the arc of a circle." "The bicuspids and molars run back on each side in almost parallel straight lines, with a slight divergence buccally of the lower molars and a slight divergence lingually of the upper molars."

"The distal cutting edges of the canines of both upper and lower arches should point in the direction of the molars, the necks of these teeth only being prominent, allowing the bicuspids to be placed so that they are only slightly visible from the front."

"The arches viewed from the sides show a curve from the front to the rear, the curve being greater in the lower arch, depending on the length of the overbite of the upper incisors. This curve begins to go upward back of the 1st molars. but in the construction of artificial dentures the curve should begin to become greater back of the bicuspids, as the third molars are not used in such dentures."

"Two straight lines touching the buccal surfaces of the bicuspids should touch the mesial corner of the 1st molars and the distal half of the canines. The intersecting point of these lines should be at the same distance from the incisors as the incisors are from a line drawn across the base of the arch."

"A side view of the upper arch shows that the incisors, canines, and bicuspids are all on the same level, while the two molars are on a curve bent upward from this level."

I am aware that this somewhat appalling statistical description may poorly serve me in the effort to make the Gysi system appear simple. I have merely endeavored to show by it the scientific character of the tooth forms and to establish thereby a correct estimate of their value and of their usefulness to us. In the practical use of the teeth, it is not at all necessary to show the methods by which their forms were determined, as will presently be seen, however interesting this may be for those who care to study it.

And now let us speak of the technic of using these teeth on the Adaptable Articulator which has been set for the individual case, or upon the Simplex, a good general instrument upon which, however, the casts must be properly located with the face-bow.

The six upper anterior teeth are set up in the arc of a circle upon the lower bite-plate, the occlusal plane of which has been made at the time the bite was taken. Then set in the lower six anterior teeth first fitting the lower canine so its point moves just anterior to the point of upper canine, and their facets touch in lateral movements. The lower incisors should be just out of contact with the upper, and far enough under so they just touch the upper incisors in lateral movements. Wax these teeth firmly to the base plate. Then open the articulator 1.5 m. m. by moving the incisor guide-pin down, and set the upper bicuspids and molars in contact with lower bite-plate with arch outline and cusp levels as before described. Open the articulator 1.5 m. m. and set lower molars and bicuspids in occlusion with the upper. The bows of the instrument are now separated 3 m. m. or about 1-8 in. Care should be taken to set the teeth over the ridges and according to the previously described plan.

They are now made to fit together more accurately by Gysi's process of automatic articulation. "The incisor guide-pin is raised about 1 m. m. out of contact with the inclined plane and the set screw tightened. The wax about the necks of the teeth is slightly warmed so that the teeth can be moved by pressure. The articulator is opened and moved into lateral occlusion on one side and closed with the upper and lower buccal cusps interdigitated. Slight pressure is exerted. The denture is then opened and returned to a position of central occlusion and pressure is exerted in that relation of the dentures." This is repeated for the other side. A second time the incisor guide-pin is lifted 1 m. m. out of contact and the process just described repeated. Again the pin is lifted 1 m. m. and the process repeated, this time bringing the incisors and canines into articulating relations. Clapp pertinently says, "If automatic articulation is properly carried out, it establishes in a few seconds relations which most of us have spent hours seeking to establish by other methods. It adjusts the inclinations of the several teeth to the movements of the articulator."

Gysi has also designed the bicuspid and molar teeth in the form of a block which simplifies still further the setting up of the teeth. Gysi's final step is grinding to adjust any minor lack of filling of the teeth or slight defects in form due to baking. "The articulation of the dentures is finished by grinding the sets together with a paste of carborundum powder and glycerine between the cutting edges and occlusal surfaces. The dentures should be held in contact with light but firm pressure and made to perform the lateral movements of mastication. This may be continued until the right relations are established to the dentist's satisfaction and the proper facets have been perfected on the anteriors and formed on the bicuspids and molars. This should not require more than 20 minutes."

For those who are not disposed to employ the Gysi adaptable articulator, I would sugest as a next choice the Snow articulator and face-bow. The Gysi teeth can be used on it but to gain the advantages of automatic articulation, an incisor biteguide should be affixed. Finally the Gysi simplex articulator will give results better than those of any other non-adjustable articulator and will answer the requirements of two-thirds of the cases ordinarily presented.

Amoedo, Frahm and Dalbey have recently devised articulators and made observations on some of the phases of tooth articulation, but none have made any marked changes in our already existing ideas.

Amoedo, O.—"Taking the Occlusion and Registering the Condyle Path." The Dental Cosmos—Vol. LVI, p. 409.

Bonwill, W. G. A.—"The Science of the Articulation of Artificial Dentures." The Dental Cosmos, Vol. XX, p. 321.

Balkwill, F. H.—"The Best Form and Arrangement of Artificial Teeth for Mastication." Odont. Soc. of Gr. Brit., Vol. V (1865), p. 133.

Clapp, Geo. W.—"Prosthetic Articulation." 1914.

Campion, Geo. C.—"Method of Recording Graphically the Movements of the Mandibular Condyles in the Living Subject." The Dental Digest, 1903, p. 841.

Constant, T. E.—"A Note upon the Misunderstood Movements of the Temporo-Mandibular Joint." Journal Brit. Dent. Assoc. June, 1900. "A Criticism of the recent paper by Messrs. Tomes and Dolamore." Journal Brit. Dent. Asso., Sept., 1901. "The Movements of the Mandible." Brit. Journal Dental Science, 1901, No. 807, No. 814. Sept. 1 to Dec, 16, 1901.

Christensen, Carl (Copenhagen).—"A Rational Articulator." Quarterly Circular, C. A. Ash & Sons. Dec., 1901; p. 22.

Davis, A. N.—"Anatomical Arrangement of Artificial Teeth." Items of Interest 1903, page 81.

Dalbey, W. C.—"Essentials of Anatomical Articulation." The Dental Cosmos, Vol. LVI, page 943.

Eltner, Ernst.—"Mechaink des Unter Kiefers und Zahnarztlichen Prothese," Deursche Zahnheilkunde in Vortragen Leipzig, 1911.

Frahm, F. W.—"Studies of the Human Masticatory Apparatus and its Relation to the Prosthodontist and Treatment of the Same." The Dental Cosmos, Vol. LVI, p. 533.

Gysi, Alfred.—"The Problem of Articulation." The Dental Cosmos, Vol. LII, page 1.

Guerini, V.—"The Historical Development of Dental Art." The Dental Cosmos, Vol. XLIII, page 8.

Morrison, J. H.—"The History and the Value of the Physiological Articulation of the Teeth." The Dental Review 1903, page 14.

Luce, A.—"The Movements of the Lower Jaw." Boston Medical and Surgical Journal, 1889.

Turner, Chas. R.—"The American Text Book of Prosthetic Dentistry." Fourth Edition.

Chas. S. Tomes and W. H. Dolamore.—"Some Observations on the Motions of the Mandible." Trans. Odontolog, Soc. of Gr. Brit., 1900, p 167; also Brit. Journal Dent. Science, June 1, 1901.

Walker, W. E.—"Facial Lines and Angles in Prosthetic Dentistry." The Dental Cosmos, Vol. XXXIX, p. 789.

Wilson, Geo. H.—"Dental Prosthetics." Second Edition.

Weiss, O. A.—"Practical Application of the Principles of the Bonwill Articulation." Dental Review 1903, p. 818; also reprint pamphlet.

Parfitt, J B.—"A New Anatomical Articulator." Se Progres Dentaire. Oct. 1903, page 303.

Discussion on Dr. Turner's Essay was opened by Dr. J. S. Spurgeon.

Story of the "brandy peaches."

The essayist has called attention to one of the important factors with which we have to deal. As a profession, we have long prided ourselves on the accuracy with which we were able to do things. Our motto has been that whatever was worth doing, was worth doing well. We have spared no labor or expense in order that we might produce the best results possible. But I fear that we have not availed ourselves of all the information at our command in order that we might be able to do the best possible in every instance, in this particular field that the essayist has called our attention to tonight.

Two years ago at the meeting of the S. B. N. D. A. at Old Point, I dropped the statement that when any man made a full denture without using an automatic articulator, and secured anything like the best possible results, that it was only an accident. You can well imagine the protest and indignation that a statement like that would arouse, especially among the men who have been practicing dentistry for a number of years, and successfully.

However, since hearing the essay tonight I am more fully convinced that I was right. You would not expect the most expert mechanic to do a piece of work without accurate measurements; you would not expect a builder to construct a house without following accurately the measurements as given by the architect. I am reminded of a man who wanted a wire screen door. He held his hands up so, walked across the street and said to the maker: "I want a wire screen door just this width, and just this much higher than my head." Just so, you cannot more expect a perfect fitting plate without the proper measurements; that is what an automatic articulator means—correct measurements.

Personally and in behalf of the Association, I wish to thank Dr. Turner for bringing this matter to our attention.

It will stimulate us to renewed energy along this line, and I am sure that if we will continue, we will be more than pleased and gratified with the results. I have tried to find some point in this paper to criticise or to differ from, but I cannot. We all must agree with the essayist as to the desirability and necessity of obtaining a good occlusion. So far as the speaker's knowledge of the situation goes, there is no other accurate means of obtaining this than by the use of the automatic articulator, and I believe the outline as given by the essayist to be a great help in obtaining the desired results. In fact, it will help us in the manipulation of the articulator.

During the past few years I have endeavored to use an automatic articulator, and my efforts along this line bear out every statement that Dr. Turner has made, both as to the importance of, and the manner of using it.

The discussion was continued by Dr. C. N. Hughes, Dr. S. W. Foster, Dr. J. H. Wheeler and closed by Dr. Turner.

Dr. Clinton C. Howard, of Atlanta, Ga., gave an illustrated lecture on "Diagnosis in Orthodontia." Several questions were asked and answered.

The Society adjourned till 9:00 o'clock Friday morning.

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### FRIDAY—MORNING SESSION.

Clinics were given by Drs. Thomas P. Hinman, Alonzo Milton Nodine, C. L. Alexander and J. W. Stanly. (See Appendix.)

After the clinics, the Society was called to order by the President.

Dr. P. E. Callahan, of McRay, Ga., was recognized.

Dr. C. A. Hughes, of Atlanta, Ga., read a paper, "Factors Essential for the Successful Practice of Dentistry."

## FACTORS ESSENTIAL FOR THE SUCCESSFUL PRACTICE OF DENTISTRY.

Why is it that out of the number of dentists of our acquaintance so few are really "a success?" We can best arrive at the cause by figuring out just what is necessarily accomplished before we succeed.

Under this plan our first study will be the feature of "Preparation for Practice." The public is becoming so educated that they easily classify the man as to his ability.

The proper college training is, of course, essential, but the recent graduate, happy in the possession of his diploma and state license, is not the finished product but simply has the foundation upon which he must now build; has the preliminary training in order that he may study intelligently for himself.

How shall we study? By finding out what the other man has learned in his years of experience. How do we accomplish this? By reading and studying the leading dental journals, by attending local, state and national dental association meetings and coming in contact with the men "who are doing things," and learn from them. There is no one man who knows all there is to know about dentistry, and we can always learn something from the other fellow regardless of his calibre. Above all things, never get the idea that YOUR PLAN OR YOUR IDEA IS THE ONLY ONE. Try out suggestions and base your opinion on the results.

The second point for consideration is location. You cannot fit a roung peg into a square hole. You may drive it so hard that it will distort from its original shape enough to stay in place but it does not fit. The same idea may be applied to the dentist and his location. While one locality will make one demand, another is entirely different. In some localities personality, refinement and education play an equal part with ability. The dentist, to succeed, must find a location where he can absolutely supply the demands made upon him, and if he finds that the demands are too great, then seek a place where he can at least come up to the requirements. It is much more satisfactory to live in a community where you will be looked up to than to get into one where you will go unnoticed. I do not wish to suggest that we should not be ambitious, but rather that the failure of many dentists to make good is due to their inability to meet the demands of their location.

Third, arrangement and equipment of an office is a point frequently overlooked, and yet no dentist can properly serve a clientele without proper equipment, an office arrangement giving the greatest efficiency for your space, a color scheme which gives a pleasing appearance to the patient upon their first and subsequent visits, the doing away with the so-called "hospital effect," yet presenting the appearance of absolute cleanliness, must be most carefully considered.

The office should be a matter of pride to the owner, and then not only will it be a pleasure, but IT PAYS. In December, 1912, I doubled space and added a little more than $1,000 to my office. The following twelve months showed an increased practice of 51 per cent. True my practice was building, but at least 25 per cent was due to my improved surroundings.

Recently a lady in talking with a dental supply man asked, "Why is it my husband does not control the practice his ability commands?" His reply was "equipment." She immediately remarked, "I have money, I can easily remedy that." She did. Soon after a gentleman walked in, saying, "You have such a beautiful and attractive office that I want you to do some work for me." That man was John D. Rockefeller, and he not only patronizes this dentist but sends his friends. The dentist is the same, the ability the same, but the practice and income trebled. If your office pleases, you hear it; if it displeases, the dentist across the street, who is properly equipped, hears it.

Do you employ a lady assistant? From a business standpoint you cannot have a better investment. Ladies can come alone to your office and feel much more comfortable when a lady is standing by your chair, looking after the comfort of your patient, as well as assisting you in operations. When we consider the services rendered by a competent assistant, she is the best investment we have. She can be easily trained to answer the 'phone, make engagements, place the patient in the chair, place and sterilize instruments, mix cements and amalgam cast inlays, bake porcelain inlays, keep your accounts, mail out statements, typewrite your correspondence with the aid of shorthand or the dictaphone, and you can almost collect enough from the prophylaxis practice to pay her salary. She keeps your place looking clean and attractive, as well as giving to it the air of refinement which always accompanies a lady's presence.

Many states, of course, have laws prohibiting collection of a fee for service rendered by anyone who is not regularly licensed, and you would, of course, be governed by local legislation as to any fee for services rendered by an assistant. Yet, discarding this item altogether, you have a paying investment.

Many dentists have an idea that their patients would not submit to an assisant cleaning their teeth, but I want to say that not more than 2 per cent will object. and if you can once have an assistant who is properly trained, conscientious and careful. to serve your patients, you will find them coming back and asking for a repetition of such service. If you will be absolutely honest with yourself, you will acknowledge that 90 per cent of us do not give as much time and attention to this all important subject or oral prophylaxis as we should. Will it not then be a blessing to our patients to have a competent assistant to do this work in a more thorough manner than we will or have been doing?

Lack of careful selection and economy in purchasing supplies is an avenue of tremendous waste, as the average dentist can be sold anything from a white elephant to stock in a gold brick corporation. The average dentist buys 40 per cent more instruments and supplies than he needs or can use. A carefully selected set of instruments, with a thorough knowledge of the use of each, does away with the useless accumulation of needless instruments, which can only delay the operation and occupy valuable space, as well as cost money which might be otherwise and much better spent. Each instrument must be in absolute condition and in its place ready for use. Fumbling around among miscellaneous sections of a cabinet looking for an instrument is a great loss of time and creates a bad impression on the patient, whose frame of mind is probably anything but pleasant at the time.

To succeed we must select standard materials and learn their manipulation to the last point. Each material has its pecularities—points good and bad—and to give our patients the results to which they are entitled, we must have an exact knowledge of all the materials we use, their manipulations, limitations, etc. The continued experimentation with the various materials offered is decidedly an expensve proposition to both patient and dentist. Learn the good qualities and peculiarities of standard materials, and use where indicated. For example, using a different alloy for each month of the year does not spell success in amalgam work.

The above mentioned points are essential to the success of the dentist, but now we make the final drive at the weakest and yet the most vital point.

Are you business-like and systematic in the conduct of your practice and business dealings?

Those persons in position to judge accurately grade the business qualification of the dentist at 50 per cent. Now, by this grade we mean that the average dentist shows through business transactions that he is only one-half the man of business he should be. There is no commercial concern of today whose stock is quoted above par that is not absolutely systematic in its business. Every detail is governed by system. In fact, there is so much so-called "red tape" that it often seems useless and proves irksome to the employee; yet where we see business system, we see success.

It is claimed that Armour & Co. now utilize every particle of the pig except the "squeal," and the by-products are the profit makers.

How many of us can claim any system in our office? Do you keep accurate records of services rendered? Do you realize the importance of keeping a complete record of each operation, with the material used and price charged? Patients cannot be depended on to remember the details of your work, and frequently claim that your filling has come out when such is not the case, and you are consequently placed in an embarrassing position; while. if accurate records are kept, you can easily satisfy your patient and yourself as to your liability or responsibility and possibly bind closer your patient and friend, where a misunderstanding might possibly result in the loss of patronage. Suppose it became necessary to go into court to collect an account—would records be necessary?

A systematic account of all work done and collections made should be kept all the time in order that you may know at a moment's notice what your business for the week, month or year has been. You then easily see by comparing your expense account and cash collections whether or not your business is on a paying basis. You can tell whether or not expenses are eating up profits and whether or not you are receiving compensation for your labor.

I was asked for advice recently by a dentist whose income for the year was $6,000, and yet he claimed he could not accumulate anything. Investigation showed the following: Rent $66, assistant $125, stenographer $70, maid $16, telephone $9.00, material $45—per month; total $4,092 per year, or a balance for salary or profit of $1,908. Now, when you figure personal and home expenses, no further comment is needed.

Another case was a dentist who worked by the hour, had no difficulty in getting his regular fee and had time filled for weeks ahead, yet expenses were gradually snowing him under.

These illustrations are merely used to impress upon you the fact that it is just as essential to success to watch the expense account as to watch the collections.

Do you realize that the busy man fails to charge a large percentage of his work unless he is a "system fiend?" You cannot afford to allow a patient to leave your operating room without having diagrammed your operations. I know of men losing hundreds of dollars every year from lack of attention to this one feature. There are men who are more interested in doing the work and getting to the next patient than they are in charging the work done. Where a credit business is done it is absolutely essential to be more than careful of charges.

Are you careless in making appointments? It is an easy matter to use your time to advantage by careful appointment, and requires no effort to waste it in carelessly made engagements. You can approximate the time required for an operation and allow each patient the necessary time, thereby saving both your own and the patient's time.

Appointments should also be made. taking into consideration the class of work to be done and the physical condition of the dentist at this hour of the day. The delicate operation of removal of nerves and root canal work should not be placed on your appointment book just at the close of the day's work when you are more or less tired and nervous from a strenuous day. Time is also saved in changing instruments for different classes of work if several operations of a similar nature come together, and it is entirely possible to arrange your patients as you like when they understand that there is a reason for your wanting them at special hours. This suggestion is practically overlooked by the dentist, but it really contains merit worthy of consideration.

Have you considered the value of your patient's time? I was told of a dentist who waited on seventy-two patients on Monday, June 16th. Now, what could he have possibly done. averaging six or seven minutes to the patient? Do you know that it requires more time to go and come from your office, including the preparation for this trip, than you probably give to the patient? Now, if you keep them waiting for a delayed appointment also, how much should you discount from the value of your services for loss of time from the standpoint of the patient?

Then again, when rushed, you place one treatment after another in cases of aching and exposed pulps. simply playing for time. and not only waste your patient's time but in a very few treatments, you have consumed all the time necessary to do the full operation and have the operation yet to perform.

There are many dentists who claim that it is unprofessional to mention prices to a patient when beginning your services, but I claim that it is a business proposition and nothing but justice to your patient that should your bill amount to $25 or more, you should explain to your patient what your ideas of the service needed are and the approximate cost of same. When you have done this, it is then up to the patient to settle your bill promptly upon completion of the operation, unless he has made a special agreement as to terms for settlement. A business agreement at the beginning makes collections easy, and nothing is truer than the saying, "Short settlements make long friends."

Is it not just as essential to you and me that we should investigate all applicants for credit as it is for a bank to investigate applications filed with it? I am sorry to say that a large percentage of dentists are so anxious to do a large practice and tell "Munchaussen" tales of work turned out that they are indifferent to investigating applicants for credit.

You may excuse yourself by saying that materials do not cost much, yet we must remember that we are not commercializing on materials. Still. if you care to figure it from that standpoint. you can only approximate the material at 20 per cent of the actual cost to you. People who pay their bills will readily, and even with pride, give you all the references you want; and if they do not pay their bills, it is far better to "make them mad" before you serve them than to make them mad trying to force collection after having spent time, material and labor in waiting on them. If you make them mad forcing collections, they will not only leave you but talk about you. If they are refused credit. they can't afford to and won't talk.

In our large towns and cities we have credit reference concerns which will furnish reports at a small cost per year, and if you will use them you can save hundred of dollars and weeks of worry because you know that your accounts are good. My collections, which amount to 95 per cent, have been the subject of favorable comment, and all of the credit is due to a local credit reporting agency, whose reports save me hundreds of dollars every year of my practice.

I will use one illustration only—the case of Mr. A. who worked for B. Co., a very large manufacturing concern. Mr. A was referred by the manager of B. Co., a personal friend, who said that he had only recently employed Mr. A. and that he needed dental attention, but was not able to pay at once for the services needed—if I would allow him to divide the amount into several payments, he could handle it all right. He also stated that if the young man remained in his employ, he would see that his account was settled. An examination showed $75 in attention necessary. The credit company was called and a report asked for, with the following report promptly returned: "Name A., position B. Co., has been employed just ten days and we are told earns a salary of $100 per month. Previous to present employment. was with R. C. Co., who state that he left them voluntarily to accept his present position.' His services were not altogether satisfacotry owing to lack of experience. We are told he came here from G., where he left several small bills of two years standing unpaid. The only credit was with a flower and candy store, amounting to $20, which has not been paid and the account closed with instructions to require cash in future."

Now, coming in recommended by the manager of as large a concern as this, you would go ahead without investigation. In this case I worked just as fast as he paid. He has since changed positions and his account stands balanced on my books. This case illustrates how it pays to be careful and investigate your requests for credit. Numerous other similar cases could be cited.

In an attempt to secure data for this paper I selected twenty of our local men whom I thought would answer the following questions. I received five replies as follows:

Q. 2. When patient applies for credit rating? ............ I. Asking references and part cash; 4. Credit associations referred to above.

Q. 3. How many have you refused credit in past year? One refused one, cash demand 3; "D ............ few," I.

Q. 4. What is your collection average as compared with total amount of work completed? 3, 95 per cent; I, 88 per cent; I, 75 per cent—and still the dentist who collects only 75 per cent adds the following footnote: "With a $2,500 investment in office fixtures, fifteen years experience (four years in this city) I am making but a little more than expenses. If you could possibly suggest a way to get ahead of the game, I will pay you well for the suggestion. I know that I have the ability to do the work, but to get business is another thing. I wish you would get up a paper on this subject."

As to the question of expense, one gives 50 per cent, two 39 1-2 per cent, one 49 1-2 per cent, and the fifth, who is about the best business man in the dental profession with whom I am acquainted, adds as follows: "Merchandise and expense combined cost me 21 1-4 per cent in 1901 and 29 per cent in 1911. This latter figure too high and was cut in 1912 to 23 3-8 per cent. Average for ten years was 25 1-4 per cent, merchandise about 12 1-2 per cent, and expense 13 to 14 per cent."

The following letter accompanied one of the reports:

"Dear Mr. Hughes:—

"Enclosed find paper with questions answered as per your request.

"As you will see the expenses are about 50 per cent and do not include amount paid out at college and equipment. I have only been studying this problem during the past five or six months, and I find that my fees are too low, expenses too high, and that I was not making as much money as I thought I was. Hope to profit by my mistakes in the past and show a better record in the future. I believe this is one of the most important problems that the dental profession has to solve, and also that it is the one that has been neglected the most."

From the other fifteen I received profuse apologies or silent regret at not being able to answer the questions from lack of data due to the fact that no accurate system was employed.

How many of you could answer these questions correctly from data in your files?

The first four slides are floor plans, which show the conservation of space and efficiency in arrangement.

The next slide is that of Mrs. I. A. Wood, the first lady who practised prophylaxis in Georgia and gave lectures on same.

The next one dozen slides are of offices showing the color scheme. You will note that the color scheme is carried out in each one of these offices to give absolute harmony and pleasing appearance.

The next slide takes up the question of system of recording the names, telephone addresses, and references of the patients, when they first come into the office. This gives you a mailing list in case of removal of office, or gives you a method of quick communication in case of change of appointment; also gives you the necessary data for credit reference.

The next slide is one which acknowledges a patient having been referred to you. It is a courtesy, which should be shown to your patients when they refer other patients to you.

The next slide is an examination blank, on which services are recorded at the chair, and placed on the pin file, to be then carried to your day book and ledger by your assistant.

The next slide is part of the page from the day book, showing the amount of work done and cash collected. By using this simple system you can tell any day, week, month, or year exactly what the amount of your business is and the cash collected, which gives you the percentage of collections.

The next slide is a page from your dental ledger, which shows a similar diagram to the examination blank, on which each and every operation with charges made, as well as collections, should be made.

The next slide is a simple form of bill used.

Next we have a simple form of receipt. This is put up in regular pad form, in which the stubs remain intact. This prevents errors in posting to accounts.

The next slide is a form used by one of our most successful dentists of the ledger. This is a loose-leaf system, as you will see from the perforations, and is a very convenient form of ledger.

The next is a form used by one of our local dentists, which is called an examination or estimate blank. You will note the printing on the bottom of this estimate, which has a good deal to do with the future handling of the patient.

We have next a form of record of operations used by this same dentist.

Next the ledger. This is also, you will note from the perforations, a loose-leaf system, which is used by quite a number of successful dentists.

The next card I find very useful indeed since it carries a record, that helps quite a great deal in the collection of the account. Just about two or three days before the end of the month your assistant can place these cards on your desk, and by the symbols, which you note on the slide, you may conduct your collection system without having to go entirely through the ledger for the information needed.

The next is a letter, which we use in our collections, and is known as "Letter No. 1," which is sent out after the second bill.

The next, or "No. 2 Letter," follows, and urges collection in a very courteous manner. We have found that that letter has quite a splendid effect on collections.

"Letter No. 3" is supposed to be the final letter before turning the account over to the collector or placing it for collection.

This last slide gives you the amount of practice, the amount of expense, the profit, and the expense of conducting the practice. You will notice in this slide we have the expense running from 28 to 70 per cent. A careful study of this slide is all that is necessary to make us very much more careful in the conduct of our practice.

When we compare the factors, which have been mentioned in this paper, to the conduct of our practice, it is no wonder to us that shortly before his death Dr. Louis Jack made the statement that all but one have died poor.

The discussion of Dr. Hughes' paper was opened by Dr. J. H. Wheeler, and was also discussed by Dr. J. C. Watkins and Dr. P. E. Callahan. Dr. Hughes closed the discussion.

The Society adjourned.

## FRIDAY—AFTERNOON SESSION.

The Society was called to order by the President.,

Dr. C. F. Smithson presented a paper on the "Life and Character of Dr. Richard Speight Cutchin."

Dr. Richard Speight Cutchin died at Whitakers, North Carolina, on September 29, 1914, in the thirtieth year of his age. He was the son of Mr. J. M. Cutchin and his wife, Cornelia Wheless Cutchin. He was married to Miss Annie Mann, of Whitakers, by whom he is survived, together with two interesting children and a large family connection.

Dr. Cutchin was a graduate of the University of Maryland and was licensed to practice his chosen profession in 1905. Ill health was a handicap to him, but in the few years of his practice he had already acquired a liberal clinetele by his painstaking care and skill. His death was particularly sad in that he was cut off in the very youth of his usefulness, but all is well with him.

The frequent recurrences of scenes like this, when our Association pauses in its important duties to note the death of a brother, must impress us with the feeble tenure with which we hold life. In this hour of retrospect, his kindness of heart, his ready and responsive sympathy, his catholicity of spirit, his freedom from bigotry, envy and all uncharitableness, are the qualities upon which we who know him and loved him fain would dwell to the exclusion of those attributes of intellect and character which excited our admiration and distinguished his short career in our organization.

He early accepted the teachings of the Christian religion. He believed in the immortality of the soul and the resurrection of the body. He was a student of the Bible and obeyed its precepts and seized upon its promises. It was in this faith that he passed from time to eternity. How insignificant our place in this life becomes in the presence of death! Man, isolate and alone, is but a tiny atom in the created universe. In the bustle of life, with his friends and fellows proclaiming his accomplishments, man feels his importance and power; but let him stand out in the black of night and then how entirely helpless and dependent he becomes. It is in such times as these, as well as in the still more trying ordeal when he enters alone, as he must do, the dark valley and shadow of death that man is ready to acknowledge his nothingness and to cry out to an invisible power for help. What a blessing it is in an hour like that to feel that He who created the world and controls the forces of nature has us in His keeping, and like a loving Father cares for and loves us. Our dear friend had that blessing. While in the sunshine and vigor of life he complied with the conditions upon which he could have the love and companionship of his Heavenly Father when the storm came and death claimed him as his own.

May God in His infinite mercy receive us with him into His kingdom above.

Appropriate remarks to the memory of Dr. Cutchin were made by Dr. T. A. Apple.

## Report of Oral Hygiene Committee.

Your committe have, in a quiet way, endeavored to interest the members of the profession, so that they would lecture in the public schools and thus try to get the children to clean their teeth and write essays on the care of the teeth. We have not done any aggressive work, because early in the school year we were waiting to see the outcome of the efforts of Dr. Stanly's committee to get help from the State Board of Health, and then, after Dr. Stanly had succeeded in getting in touch with the said board, it was rather late to undertake active work. We have written to the superintendents of our larger city schools, asking what they did last year, and what they expect to do next year, along the line of Mouth Hygiene, and have received the following replies:

Beaufort: "Our work was general. Several of my teachers ordered small sample tubes of dental cream, a tube for each child in her room, asked the children to buy tooth brushes, and then taught them the best methods of using them. In all classes in physiology special stress was placed on this subject. Next year we are planning more extensive work along this line, and I am trying to get material along this line to put in the hands of teachers and pupils."

Black Mountain: "I am glad to tell you that we, this year, were successful in getting every child's mouth inspected by a physician. We found about 10 per cent in the upper grades which needed the attention of a dentist. In the lower grades, I believe there were about 80 per cent with poor teeth. I was greatly surprised to find such a large number.

"We urge the parents to look after the mouths of their children, always taking pains to point out to them that no child could be very proficient who had bad teeth.

"I am glad you asked about this, and certainly hope that you doctors and we teachers together, may, at least, improve the condition of things."

Burlington: "The ladies of one of the clubs here has offered a prize for the best essay on 'Oral Hygiene' for the past two years. Many of the children have shown much interest."

Charlotte: "We have talks by the teachers in their respective grades on this subject, and in a number of the lower grades a record is kept on the black board of the number of pupils that have cleaned their teeth each day. We are doing what we can to keep them the importance of this matter before our children."

CONCORD: "The only work done for the children is the advice given by the individual teachers.

"I have talked with some of our dentists about the matter but we have never gotten any action taken looking to the inspection of the children.

"I shall appreciate any help that you may be able to give me on that line."

DUNN: "The health officer of our town examined the pupils of our schools at some time during the session. When defective teeth were found the parents of those children were urged to consult a dentist."

DURHAM: "We have a physical examination for all the pupils in the Durham schools. This examination includes the inspection of the teeth. The work is done by the school physician. Cards are sent to the parents of the pupils who are found to have defective teeth, and they are asked to take the children to their dentist."

EDENTON: "We had the promise of the dentist to take it up for us, but he, after second thought, hesitated to act. He is the only dentist and was afraid the public would construe his efforts as a means of advertising."

ELM CITY: "The superintendent and teachers have made talks to the pupils on mouth hygiene. We have stressed the importance of keeping the teeth brushed and having their teeth examined by a dentist every six months.

"Colgate will give to teachers samples of tooth paste. We wrote and got them and gave them to the pupils and requested each child to get a tooth brush if he did have one, and brush his teeth one or twice daily. The teachers are required to ask the children every morning to raise their hand if they have brushed their teeth. We have a calendar for each month and when every pupil in the grade has brushed his teeth that morning, we give them a mark. At the end of the month we count np the marks to see how many perfect marks each grade has gotten, also see which grade got the most marks. This causes a little rivalry among the grades, also causes the children who do brush their to get the others to do so, in order that their grade can get a mark. I haven't tried this except in the primary grades. It seems to have helped wonderfully."

FREMONT: "We distributed free tooth paste in lower grades with occasional talks, which is all that we have done.

"No special plan for next year."

GASTONIA: "Our building was burned last May. We have had no auditorium during this school year, and consequently, we have not done very much. However, we have had some very fine lectures that dealt with this subject incidently."

GRAHAM: "Last year our primary teachers secured samples of tooth paste from Colgate & Company for all their children. Each child had to bring his tooth brush to school before he was entitled to a tube of tooth paste. The children wrote notes to the company and told them how they liked the paste and how often they were using it. The best letter in each room was sent to Colgate & Company.

"We are planning work of this sort for next year with the primary children."

GREENVILLE: "Besides frequent talks by the teachers, time has been taken in some cases daily to allow the children to report on what they did for their teeth that morning. In at least one grade the children collected all the pictures they could find pertaining to teeth and hung them in their room. A great deal of interest was stirred up among the little children. Almost all of them procured tooth brushes and learned how to use them.

"Beyond this nothing to speak of was done. We have no particular plans for next year."

Hamlet: "In addition to what the text books give on the subject, we have our primary teachers give oral instructions to their classes on the subject in question. We hope to give more definite time to the subject next year."

Henderson: "For several years I have had the assistance of all the physicians and dentists in examining the children in Henderson schools. Printed blanks were filled out stating the condition as found and sent to the parent for attention if needed.

"We have a whole time health officer who looks carefully after details and such examinations as come up at regular periods during the school term."

Kings Mountain: "Nothing along the line you mention was done in the Kings Mountain School."

Lexington: "Morning talks were given by the superintendent. Colgate's samples were distributed as well as his literature on oral hygiene. Local dentists promised frequently to give school children examination, but failed to make their promises good.

"No plan for the coming year."

Lincolnton: "I got one of our young physicians to volunteer to examine all the children in our primary department, which examination showed that 80 per cent of the children were defective either in eye, ear, nose, teeth or throat. I do not know the percentage that had defective teeth, but I am sure this percentage would be alarming."

Lumberton: "We examined all the childrens' mouths. We found diseased gums, decayed teeth and trouble of the mouth and throat. We notified the parents and urged consultation with family physician.

"We shall continue this in the future. We lay great stress on this phase of our work. Really it is a part of our school work."

Mocksville: "Our school did practically nothing the past year along the line of mouth hygiene, and we have worked out no plans for next year."

Mooresville: "Nothing has been done along this line."

Morganton: "Nothing last year. I have no information as to the future."

Mount Airy: "Some of our teachers have done individual work with pupils in connection with the Colgate Company offer of tooth paste. We have done nothing as a school in a general way.

"Dr. R. W. Reece, one of our dentists, has promised to come to the school and make examinations and give a lecture. We hope to have something of this kind done in the coming year."

North Wilkesboro: "We use in our class room Ritches Hygiene and Primer of Sanitation. All teachers are urged to instruct pupils in the care of teeth, as well as other hygiene essentials."

Oxford: "We have had talks before the school by one of the dentists and got most of them to get and use tooth brushes and paste or powders. Nothing definite for next year, only we have had a very good health officer elected who is deeply interested in the schools, and I am sure we will do more next year."

Plymouth: "Nothing has been done and I see no prospects for anything to be done next year."

Randleman: "Nothing except some talks by teachers along health lines covering the care of teeth, etc."

Raleigh: "We have done nothing in Raleigh along the line of mouth hygiene other than voluntary work done three years ago by the dentists of this city.

"We are teaching the Gulick Hygiene Series in the schools which emphasize the importance of the tooth brush and certain dental powders, and the children have been much benefitted from the interest thus aroused in the subject."

Reidsville: "I beg to say that we have done nothing aside from the effort to teach how to care for the teeth. We have organized Good Teeth clubs among the smaller children. We have had no medical inspection or treament."

Roanoke Rapids: "We have done nothing along the line of mouth hygiene and do not have any plans for the next year."

Rockingham: "(1) Tooth brush drills; (2) Lectures by two local dentists; (3) Free examination in school building of pupils' teeth by two local dentists with written report of same to parents."

Roxboro: "We have done nothing in our schools during the past year along the line of mouth hygiene, and we have no plans for next year."

Salisbury: "We have done nothing this year along the lines indicated by you. We hope next year to get the dentists in town to help us towards an examination of the teeth of the children and a prescription of what is necessary to put the teeth in good condition."

Sanford: "We secured from a tooth paste manufacturer a sample of tooth paste and gave to each child. We also got each child to promise to get a tooth brush and instructed them in the use of the brush. We had one or two lectures from dentists. I am to be in Monroe next year."

Smithfield: "There has been very little done in our school in regard to mouth hygiene. An examination has been held for all the children for adenoids, etc., and where the doctor discovered dental trouble, the children have been requested to notify their parents.

"During the coming year I shall propose to the board that all children be examined carefully and that their teeth and mouth be given special attention.

"I wish to add that in the school rooms the teachers have given lessons on the brushing of the teeth. Colgate & Company supplied us freely with samples of their tooth powder and paste."

THOMASVILLE: "We have made no plans for dental inspection in our schools. All that we have done is to teach the importance of the care of the teeth."

WASHINGTON: "We have done nothing along the line of mouth hygiene except informal talks given by the teachers. Two of the teachers ordered tooth paste for the children."

WAYNESVILLE: "We did no special work in mouth hygiene in Waynesville last year, except to make some talks to the school in the chapel and have each teacher to impress the importance of clean mouths. Next year I hope to do more systamatic work."

WILSON: "I am enclosing a blank which we use in Wilson for dental inspection. This blank was filled out for each pupil in the white schools of the town during the last month of school this year, by the local dentists, Drs. J. R. Edmundson, C. A. Thompson, Hugh Yelverton, and Oscar Hooks. We sent these blanks, filled out by the dentists, to the parents, enclosing a card to sign and return, saying the blank had been received. We kept a copy of each child's examination, so that we may find out next year just what has been done and the result.

"I wish to add that the dentists here have co-operated with the teachers and the school authorities in a manner in every way admirable."

WINSTON-SALEM: "No systematic attempt was made to carry out work along the line of mouth hygiene in our schools last year. At Depot Street the principal did some work with the help of the Colgate folks, who sent tubes of paste, which were distributed abong the pupils. I wish it were possible for us to do more than we are doing, but this will never be systematically done until somebody who is supremely interested in it takes charge of it. I shall be glad to co-operate with any person or organization that will help us to do this work, which I realize is very important."

From these letters, you can see how little has been done in the schools. Gentlemen, we ought to do more missionary work along these lines, and be willing to sacrifice in order to give time to help the school children.

As Dr. Whitsett, of our committee, has written the paper for the committee, we will not discuss the subject in this report.

We have only used about $4 of the $25 you allowed us for this work. This was used in postage in writing to the school people, and for the returned stamped envelopes we sent them. We hope that you will allow your new committee to use the balance, and also give them an amount up to $50 for the next year's work. We have been slowly trying to do effective work in the schools, knowing that we could only hope for results by long, well-planned, painstaking efforts, thus hoping to see our dreams, in a measure, realized.

Paper, "The Dentist, the Child and the Public," prepared by Dr. G. W. Whitsett, was read by Dr. L. L. Dameron.

## THE DENTIST, THE CHILD AND THE PUBLIC.

Last year we read a paper before this Association, trying to show the great need of turning our attention more to mouth hygiene, and the crying need of the State for our services; but the seed fell by the wayside. We are sorry for you that it has fallen to our lot to again appear before you on the same subject. But hear me—not for anything brilliant, or even original that we are going to say. Every one of you is thoroughy conversant with the subject. Neither do we care if you dont agree with a single idea advanced by us, but we do want YOU to advance some plans or ideas, and then act on them. This is a "Come-let-us-reason-together" paper.

For the last two days we have been studying dentistry. Now we want to study the dentist—the child, and the public, and as this paper was named before it was written we will say that PUBLICITY is the keynote. Does every live, honest, progressive dentist in the state desire the greatest good to the largest number of people he can reach, and is he willing to constitute himself a dental missionary and work, and work hard, in reaching the young people of his community?

Dental advertising is a subject as old as the hills, but we are not speaking in the sense—should you or I advertise—our subject is biger than that. Should the dental profession advertise? We unhesitatingly answer yes—with a big "Y." For years and years we have been hedged about with a code of ethics, trying to legislate ourselves into being gentlemen until our idea of doing good to our fellow-man has become so narrow that we have become almost afraid to call ourselves dentists outside our office, and aside from what we might say to our patients while in the chair, and what the newspapers contain in the way of paid advertisements from the rankest kind of charlatans, the public knows nothing of what we can and are willing to do to help humanity.

This is a day of study, research and co-operation in all walks of life. "Am I my brothers keeper?" is beginning to assume a new meaning. Men of education and scientific attainments are devoting their lives and fortunes to the betterment of those less fortunate. Take the campaign against tuberculosis, typhoid fever, and a score of other equally malignant diseases—you can remember the day when to say a child had dyptheria was equivalant to making arrangements with the undertaker. Why this change, where lies the secret of the present-day success? Science is seeking not so much the cure but the cause, and there is one word looming up before the profession so big that we hope all will stumble over it if they do not see—SANITATION, soap, water, cleanliness. It has taken the medical profession nineteen hundred years to learn the meaning of "cleanliness is next to Godliness," and we are following a close second in the race.

Something over seventy Americans die every hour from preventable diseases. What proportion of these deaths are the dental profession responsible for? Nineteenth of all contagious diseases, we are told, occur through the mouth, and ALL the long train of digestive disorder from plain stomach ache to appendicitis, and many of the diseases of faulty cell life, such as rheumatism, gout and that dread disease among our profession—pyorrhea. A noted surgeon says that ninety per cent of the people who come to him for treatment of digestive derangement owe their plight directly to the mouth conditions. Now that the medical profession is beginning to see the danger shall we sit idly by and let some physician finally tell the public the danger of oral sepsis, and then when we are asked about it, by eager patients, meekly reply, oh yes, what he says is true—we knew it all the time but wouldn't tell.

Listen, gentlemen, I am going to say something during the next few minutes that comes mighty close to the fellow who wears your coat. My county for several years has had a health officer—a physician whose whole time has been given to looking after and improving the health of the county, and we have been rather proud of this great educational movement going on among our people. The first of June our city commissioners appointed a city health officer—a physician whose time is to be given to looking after the health of the city. Here are some of his duties as set forth by said commissioners:

He shall examine the school children and look after health conditions of the children in the city schools, and especially any child that has been reported defective in the condition of its eyes, ears, nose or throat; he shall notify the parent or guardian of a child having any defect of the aforesaid organs.

Did you notice these city fathers never once mentioned the mouth or teeth? Yet we know that a septic mouth may be the cause of affections of the eye, ear, throat, bronchial tubes, lungs, heart, liver, kidneys, etc. Yet the lawyer who drew this ordinance didn't know it, the intelligent men selected to govern the city didn't know it; they merely mentioned the results, not the cause of the trouble. We swatted flies in our city till our elbows grew weak, then intelligence came, cleaned out our stables and sold our screens to the town that is still swatting. Science is seeking, as we said, the cause, and then the prevention. If these intelligent city men were ignorant what about the general public? Ought dentistry to advertise?

Listen further to the ordinance: He shall in every available way, through the press, public addresses and otherwise endeavor to educate the people of the city to set a higher value on health. While these men are setting a higher value on health what are we doing?

Better stop, look, listen, your work is staring you in the face. What are you going to do with it it?

The physicians are holding their convention in my city this week. I give you a part of Dr. W. S. Rankin's report to show what the medical profession are doing in the way of publicity.

The department of education and engineering whose work is to interest and educate the public generally in sanitation and hygiene distributed last year 47,000 copies of the Health Bulletin every month. It supplied 31 daily papers with 162 news articles and 275 weekly papers with 140 news articles, or, in brief, published through the State press about one article a day on some timely subject relating to sanitation and hygiene. Another work of the educational bureau is that done through the health exhibit, illustrated stock lectures, lantern slides and placards. During the past year the exhibit has been displayed in full or in part at the following places: Asheville, Hendersonville, Smithfield, Winston-Salem, Burlington, and Greensboro, N. C., at Jacksonville, Fla., and at the Panama-Pacific Exposition, San Francisco.

I am not even going to suggest a plan. The main object of this paper is to provoke a discussion along this line. I would like to remind you though that Germany was the first country to take up compulsory dental examination of children's teeth. We see the result today in her efficient army. Some cities in our own country are developing compulsory dental examination.

The volunteer work in Detroit continued for three years before any recognition was given the work. Now there are eleven clinics, twenty-three paid operators and eight dental inspectors. How did this happen, or did it happen, or was it work? Dr. Oakman, president of the health board, says: "To successfully launch a campaign for oral hygiene it is first necessary to interest the newspapers in matters pertaining to it, and thereby secure proper articles in the daily press, whereby the public may be taught its principles and the benefit arising therefrom. The next step is to interest those in public office, not forgetting the womans clubs, and before we asked for an appropriation we had shown them our work, and secured the names of 20,000 citizens to our petition. Some work there!

We have with us Dr. A. M. Nodine, who has accepted the editorship of a dental department recently established in the Woman's World. This magazine has a circulation of over a million, and the doctor has a most excellent opportunity to do a vast amount of good, and no doubt but what he can give us some valuable suggestions.

We might mention city after city where the free dental clinic is being established, but this paper has already grown too long. You see the writing on the wall.

Just before the great Lusitania went to her watery grave, when all on board were panic-stricken with fear, and confusion reigned supreme, one man was heard to say, "Come boys, let us save the kiddies." This tender sentiment has floated around the world and almost made him famous. There were probably not more than twenty children on shipboard, but his millions were forgotten, and he wanted to do his part towards saving them. The old ship of State, North Carolina, has on board many thousand children and some three thousand are sinking every year from preventable causes. In the name of the dental profession can't we say, Come boys, let us save the kiddies?

The paper was discussed by Drs. Patterson, Spurgeon, Nodine and Judd.

It was voted that the Secretary be instructed to write the Governor of the State, requesting that Dr. J. C. Watkins, Chairman of the Oral Hygiene Committee, be appointed a member of the State Board of Health, when the first vacancy occurs.

The Society adjourned.

## FRIDAY—EVENING SESSION.

The Society was called to order by the President.

Dr. Thomas P. Hinman gave an illustrated lecture on "The Treatment and Filling of Root Canals."

On motion of Dr. D. E. Everitt, the Society tendered a vote of thanks to Drs. Nodine, Hinman and Howard for their services.

Dr. J. A. Sinclair was elected a delegate to the Ohio State Dental Society Meeting. (Unveiling of the Miller Memorial Monument.)

Dr. I. H. Davis, Chairman of the Legislative Committee, made the following report:

## REPORT OF LEGISLATIVE COMMITTEE.

*Mr. President and Members of the N. C. Dental Society:*

The legislative committee, appointed at our meeting in Hendersonville to redraft our dental laws, beg leave to report that on finding that it was an opportune time to get a new law passed by the Legislature we drafted and were successful in now having in effect a law which we think is second to none in the United States. Most of you received a synopsis and the secretary has copies you can get by calling on him, if you have not seen one. I will not read this copy, unless requested to do so, as the time is short.

The bill was introduced in the Senate by Senator R. D. Johnson, of Warsaw, Duplin County, and piloted in the House by Representative D. G. Brummitt, of Oxford, Granville County, and Dr. E. J. Tucker, of Roxboro, Person County, and the committee would be glad if the Society would have the secretary extend to them the thanks of the Society for the successful manner in which they handled and aided us in placing it on the statute books.

I. H. DAVIS,
J. N. JOHNSON,
F. L. HUNT,
Legislative Committee.

Report adopted.

The adjustment of the Attorney's fee for the Legislative Committee's work was left with Dr. I. H. Davis, chairman.

On motion of Dr. J. Martin Fleming, the Society extended a sincere vote of thanks to Drs. Davis, Hunt and Johnson, Legislative Committee, for their faithful work on this committee.

## REPORT OF PROSECUTING COMMITTEE.

Your Committee begs leave to report that only two cases were reported to me during the year, both of which were settled without cost to the Society.

Respectfully submitted,
J. A. SINCLAIR.

The report was adopted.

The report of the Publishing Committe was read.

## REPORT OF PUBLISHING COMMITTEE.

Your committee has no special report to make other than to say that the proceedings were published within the ninety days allowed in our Constitution and By-Laws. The work speaks for itself. There are some errors and always will be, but they are typographical and of no special importance. Your committee also desires to go on record as commending most heartily the work of the stenographer at the Hendersonville meeting.

Respectfully submitted,
J. MARTIN FLEMING.

Report adopted.

Report of Auditing Committee was received and adopted.

## REPORT OF AUDITING COMMITTEE.

We, the Auditing Committee, beg leave to report that we find the accounts of the Society correct and recommend that same be placed upon the minutes of the Society.

T. A. APPLE,
P. R. FALLS,
Auditing Committee.

The Ethics Committe stated that they had no report, as nothing had come up for consideration.

Dr. P. E. Callahan, of McRay, Ga., was elected an honorary member of the Society.

## TREASURER'S REPORT.

### RECEIPTS.

| | |
|---|---|
| Balance on hand last report | $ 56.42 |
| Received on dues | 1,110.25 |
| Received for membership | 185.00 |
| Received for note | 150.00 |
| | $1,501.67 |

### DISBURSEMENTS.

| | |
|---|---|
| Paid expenses at Hendersonville | $ 57.83 |
| Membership fee returned | 10.00 |
| National Dental Society | 75.00 |
| Worthless check | 8.00 |
| Editing proceedings | 25.00 |

| | |
|---|---|
| Expenses of proceedings for 1914 | 130.30 |
| Mouth hygiene committee | 12.00 |
| Treasurer's bond | 5.00 |
| Treasurer's salary and expenses | 40.40 |
| Note and interest | 157.00 |
| Clinical expenses at Wrightsville | 302.40 |
| Secretary's salary and expenses | 112.75 |
| Total | $ 935.68 |
| Balance on hand | 565.99 |
| | $1,501.67 |

R. M. MORROW, Treas.

Wrightsville, June 25, 1915.

The Treasurer reported the following members suspended for non-payment of dues:

Allen, T. B.
Anderson, R. P.
Ashburn, T. F.
Bardin, J. B.
Biddix, J. C.
Carr, Geo. A.
Carr, R. L.
Chambers, E. O.
Chamblee, F. G.
Cripliver, W. L.
Cromartie, H. R.
Darden, P. I.
Edwards, L. M.
Edwards, W. H.
Faucette, J. W.
Feagin, G. M.
Ford, S. C.
Frazier, E. A.
Graham, R. F.
Hamilton, S. J.
Harris, M. M.
Highsmith, C. H.
Jamieson, I. W.
Keerans, J. L.
Kernodle, J. F.
Lawrence, E. N.
Lee, E. G.
Lennon, C. H.
McAnnally, C. H.
McDowell, C. H.
Myers, E. W.
Perkins, F. E.
Robbins, C. L.
Voils, C. U.
Whisnant, A. J.
Whitehead, C. A.
Williamson, B. F.

Drs. E. S. Green, Jr., S. H. McCall, P. D. Sinclair, P. L. Pearson and Daisy McGuire offered their resignations as members of the Society, which were accepted. The name of Dr. Daisy McGuire was placed on the honorary roll.

On Motion of Dr. J. M. Fleming, Dr. W. H. Hoffman, of Amber, Pa., was elected an honorary member of the Society.

A telegram from Dr. R. G. Sherill was read.

It was voted that an amount not exceeding $25 be allowed the Oral Hygiene Committe for their work.

The following officers were elected:

*President*—Dr. I. H. Davis, Oxford.
*First Vice President*—Dr. R. T. Gallagher, Washington.
*Second Vice President*—Dr. W. T. Smith, Wilmington.
*Secretary*—Dr. R. M. Squires, Wake Forest.
*Treasurer*—Dr. R. M. Morrow, Burlington.
*Essayist*—Dr. W. T. Martin, Benson.

Drs. J. Martin Fleming and F. L. Hunt were re-elected members of the Board of Examiners.

The salary of the Treasurer was increased from $25 to $50.

Drs. J. S. Spurgeon and J. C. Watkins were elected delegates to the National Dental Association, with Drs. C. L. Alexander and R. M. Morrow, alternates.

Asheville was selected as the meeting place for next year; Raleigh second choice.

## REPORT OF COMMITTEE ON ESSAY.

We, your committee on the Annual Essay, beg leave to report the following: We have carefully listened to this literary treat and most heartily and unanimously concur in his recommendations. We would urge that each of us personally do our part in making these suggestions profitable both to ourselves and our patients, and, in so doing, better show our appreciation of the Essayist's work.

C. A. THOMPSON,
W. T. SMITH,
J. H. WHEELER,
Committee.

Report adopted.

## REPORT OF COMMITTEE ON THE PRESIDENT'S ADDRESS.

We, the undersigned, your committee on the President's address, beg to submit the following: We find the address to be up to the usual high standard, showing his interest in the profession as a whole, and his ambition for the North Carolina Dental Association. We call especial attention to his remarks concerning the research work of the National Dental Association and recommend the appointment of a committee to aid this commission in any way possible.

J. C. WATKINS,
J. W. STANLY,
J. H. WHEELER,
Committee.

Report adopted.

The officers were installed, and the President appointed the following committees:

*Executive*—Drs. D. L. James, J. S. Spurgeon and J. A. Sinclair.

*Oral Hygiene*—Drs. J. C. Watkins, L. L. Dameron and G. W. Whitsett.

*Auditing*—Drs. P. R. Falls, T. A. Apple and C. A. Thompson.

*Ethics*—Drs. P. E. Horton, S. R. Horton and J. W. Stanly.

*Publishing*—Dr. R. T. Allen.

*Legislative*—Drs. J. M. Fleming, F. L. Hunt and J. N. Johnson.

The Secretary was instructed to write the members in attendance, requesting an expression of their opinion of the Progressive Clinic and Lecture Course, as compared with the former meetings.

There being no further business, the Society adjourns sine die.

Names and addresses of applicants who passed the examination given by the North Carolina State Board of Dental Examiners, June, 1915:

| | |
|---|---|
| Almond, Chas. T. | Andrews, N. C. |
| Bivens, S. B. | Marshall, N. C. |
| Blalock, J. A. | Four Oaks, N. C. |
| Brown, James W. | Woodland, N. C. |
| Campbell, T. A. | Aberdeen, N. C. |
| Carr, H. C. | Wallace, N. C. |
| Crutchfield, J. G. | Guilford College, N. C. |
| Currie, N. K. | Vineland, N. C. |
| Davenport, L. J. (colored) | Wilmington, N. C. |
| Edwards, E. L. | Sparta, N. C. |
| Edwards, J. R. | Cary, N. C. |
| Haynes, G. C. | Cliffside, N. C. |
| Holmes, A. G., Jr. | Council, N. C. |
| Hutchins, James J. | Marshall, N. C. |
| Hutchison, Clarence R. | Walnut Cove, N. C. |
| Inman, C. L. | Mt. Airy, N. C. |
| Kell, D. F. | Farmville, N. C. |
| Lowry, A. A. | Ayden, N. C. |
| McKeown, Lois Eunice | Stanley, N. C. |
| McMillan, E. A. | Hendersonville, N. C. |
| Millner, B. L. | Cascade, Va. |
| Mosely, Welton H. (colored) | Charlotte, N. C. |
| Netherland, Frank B. | Asheville, N. C. |
| Newsom, B. I. | Salisbury, N. C. |
| Payne, W. J. | Axton, Va. |
| Ralph, W. T. | Belhaven, N. C. |
| Salmons, E. G. | Boone, N. C. |
| Schultz, A. M. | Greenville, N. C. |
| Scruggs, Wilbur N. | Rutherfordton, N. C. |
| Secrest, John R. | Unionville, S. C. |
| Simmons, C. B. | Spartanburg, S. C. |
| Sturdivant, J. N. | Marshville, N. C. |
| Tarpley, H. M. | Spartanburg, S. C. |
| Underwood, F. H. | Roseboro, N. C. |
| Warren, E. R. | Prospect Hill, N. C. |
| Weaver, E. C. | Weaverville, N. C. |
| Webster, B. H. | Madison, N. C. |
| Williamson, H. L. | Cerro Gordo, N. C. |
| Williamson, J. F. | Clinton, N. C. |
| Yates, W. F. | Chadbourn, N. C. |

List of Presidents of the Society since its organization.

| | |
|---|---|
| 1875-6 | *B. F. Arrington |
| 1876-7 | *V. E. Turner |
| 1877-8 | *J. W. Hunter |
| 1878-9 | *E. L. Hunter |
| 1879-80 | D. E. Everitt |
| 1880-1 | *Isaiah Simpson |
| 1881-2 | M. A. Bland |
| 1882-3 | *J. F. Griffith |
| 1883-4 | W. H. Hoffman |
| 1884-5 | J. H. Durham |
| 1885-6 | J. E. Matthews |
| 1886-7 | *B. H. Douglas |
| 1887-8 | *T. M. Hunter |
| 1888-9 | *V. E. Turner |
| 1889-90 | S. P. Hilliard |
| 1890-1 | H. C. Herring |
| 1891-2 | C. L. Alexander |
| 1892-3 | *F. S. Harris |
| 1893-4 | C. A. Rominger |
| 1894-5 | *H. D. Harper |
| 1895-6 | R. H. Jones |
| 1896-7 | J. E. Wyche |
| 1897-8 | H. V. Horton |
| 1898-9 | C. W. Banner |
| 1899-1900 | A. C. Liverman |
| 1900-1 | E. J. Tucker |
| 1901-2 | J. S. Spurgeon |
| 1902-3 | *J. H. Benton |
| 1903-4 | J. M. Fleming |
| 1904-5 | W. B. Ramsay |
| 1905-6 | J. S. Betts |
| 1906-7 | J. R. Osborne |
| 1907-8 | D. J. James |
| 1908-9 | F. L. Hunt |
| 1909-10 | J. C. Watkins |
| 1910-11 | A. H. Fleming |
| 1911-12 | P. E. Horton |
| 1912-13 | R. G. Sherrill |
| 1913-14 | C. F. Smithson |
| 1914-15 | J. A. Sinclair |
| 1915-16 | I. H. Davis |

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*Dead.

List of life members by virtue of having paid dues for twenty-five consecutive years:

| | |
|---|---|
| Alexander, C. L. | Charlotte, N. C. |
| Carr, I. N. | Durham, N. C. |
| Conrad, W. J. | Winston-Salem, N. C. |
| Everitt, D. E. | Raleigh, N. C. |
| Hilliard, S. P. | Rocky Mount, N. C. |
| Horton, H. V. | Winston-Salem, N. C. |
| James, D. L. | Greenville, N. C. |
| Little, J. B. | Newton, N. C. |
| Liverman, A. C. | Scotland Neck, N. C. |
| Lynch, Wm. | Durham, N. C. |
| Matthews, J. E. | Wilmington, N. C. |
| Morrow, R. M. | Burington, N. C. |
| Parker, J. M. | Asheville, N. C. |
| Patterson, G. B. | Fayetteville, N. C. |
| Spurgeon, J. S. | Hillsboro, N. C. |
| Whitsett, G. W. | Greensboro, N. C. |
| Wyche, J. E. | Greensboro, N. C. |

New members elected 1915:

### *Honorary.*

| | |
|---|---|
| Callahan, P. E. | McRay, Ga. |
| Hoffman, W. H. | Amber, Pa. |
| Howard, Clinton C. | Atlanta, Ga. |
| McGuire, Daisy | Sylvia, N. C. |
| Nodine, Alonzo Milton | New York. |
| Quattlebaum, E. G. | Columbia, S. C. |

### *Active.*

| | |
|---|---|
| Boon, A. C. | Rocky Mount, N. C. |
| Carr, H. C. | Wallace, N. C. |
| Coltrane, J. F. | Zebulon, N. C. |
| Edge, C. E. | Rocky Mount, N. C. |
| Edwards, E. L. | Asheville, N. C. |
| Edwards, J. R. | Cary, N. C. |
| Gardner, J. M. | Gibson, N. C. |
| Gibbs, W. D. | Fayetteville, N. C. |
| Haynes, G. C. | Cliffside, N. C. |
| Holmes, A. G., Jr. | Southport, N. C. |
| Humphrey, L. M. | Greensboro, N. C. |
| Hutchison, C. R. | Walnut Cove, N. C. |
| Inman, C. L. | Mt. Airy, N. C. |

| | |
|---|---|
| King, D. D. | Lumberton, N. C. |
| Lowry, A. A. | Asheville, N. C. |
| Manning, M. P. | Robersonville, N. C. |
| McMillan, E. A. | Hendersonville, N. C. |
| Murphy, R. H. | Mebane, N. C. |
| Netherland, F. B. | Asheville, N. C. |
| Riddick, C. R. | Ayden, N. C. |
| Schultz, A. M. | Greenville, N. C. |
| Stainback, J. F. | Wadesboro, N. C. |
| Underwood, F. H. | Roseboro, N. C. |
| Warren, E. R. | Prospect Hill, N. C. |
| Weathersbee, R. | Wilmington, N. C. |
| Weaver, R. C. | Weaverville, N. C. |
| Webster, B. H. | Madison, N. C. |
| Williamson, J. F. | Clinton, N. C. |
| Yarborough, J. A. | Wake Forest, N. C. |
| Yates, W. F. | Chadbourn, N. C. |

## HONORARY MEMBERS:

| | |
|---|---|
| Adair, R. B. | Atlanta, Ga. |
| Adair, Robin | Atlanta, Ga. |
| Banner, C. W. | Greensboro, N. C. |
| Beadles, E. P. | Danville, Va. |
| Bland, C. A. | Charlotte, N. C. |
| Bland, M. A. | Charlotte, N. C. |
| Bogle, R. B. | Nashville, Tenn. |
| Bryan, N. L. | Newton Grove, N. C. |
| Callahan, P. E. | McRay, Ga. |
| Campbell, H. W. | Suffolk, Va. |
| Carroll, Delia Dixon | Raleigh, N. C. |
| Carter, Eva C. | Riverton, Va. |
| Chisholm, W. W. | Anderson, S. C. |
| Collins, Clara C. | Atlanta, Ga. |
| Cowardin, L. M. | Richmond, Va. |
| Crenshaw, William | Atlanta, Ga. |
| Cryer, M. H. | Philadelphia, Pa. |
| Cuthbertson, C. W. | Washington, D. C. |
| Dale, J. A. | Nashville, Tenn. |
| Eby, Jos. D. | Atlanta, Ga. |
| Foster, S. W. | Atlanta, Ga. |
| Goldberg, E. H. | Bennettsville, S. C. |
| Gorman, J. A. | New Orleans, La. |
| Heatwole, T. O. | Baltimore, Md. |
| Hinman, Thos. P. | Atlanta, Ga. |
| Hoffman, W. H. | Amber, Pa. |
| Holland, Frank | Atlanta, Ga. |

| | |
|---|---|
| Holliday, R. S. | Atlanta, Ga. |
| Howard, Clinton C. | Atlanta, Ga. |
| Huff, M. H. | Atlanta, Ga. |
| Hughes, C. N. | Atlanta, Ga. |
| Johnson, H. H. | Macon, Ga. |
| Kirk, E. C. | Philadelphia, Pa. |
| Lambright, W. E. | Atlanta, Ga. |
| McCullough, F. R. | Atlanta, Ga. |
| McGuire, Daisy | Sylvia, N. C. |
| Moore, S. W. | Baltimore, Md. |
| Morgan, H. W. | Nashville, Tenn. |
| Nodine, Alonzo Milton | New York, N. Y. |
| Quattlebaum, E. G. | Columbia, S. C. |
| Rominger, C. A. | Zion City, Ill. |
| Rutledge, B. | Florence, S. C. |
| Simpson, R. L. | Richmond, Va. |
| Smith, B. Holly | Baltimore, Md. |
| Spratley, W. W. | Richmond, Va. |
| Starr, E. L. | Philadelphia, Pa. |
| Strickland, C. D. | Anderson, S. C. |
| Teague, B. H. | Aiken, S. C. |
| Thompson, J. S. | Atlanta, Ga. |
| Turner, C. R. | Philadelphia, Pa. |
| Turner, M. E. | Atlanta, Ga. |
| Visanska, S. A. | Atlanta, Ga. |
| Whitaker, Joel D. | Indianapolis, Ind. |
| White, J. A. | Williamston, N. C. |

## ROLL OF ACTIVE MEMBERS:

| | |
|---|---|
| Adams, A. J. | Durham, N. C. |
| Alexander, C. L. | Charlotte, N. C. |
| Allen, R. T. | Lumberton, N. C. |
| Apple, R. O. | Winston-Salem, N. C. |
| Apple, T. A. | Winston-Salem, N. C. |
| Bain, C. D. | Dunn, N. C. |
| Baird, C. D. | Franklin, N. C. |
| Baker, L. P. | Kings Mountain, N. C. |
| Banks, C. H. | Louisburg, N. C. |
| Banner, J. E. | Mt. Airy, N. C. |
| Barker, O. C. | Durham, N .C. |
| Battle, J. J. | Rocky Mount, N. C. |
| Bell, John G. | Morehead City, N. C. |
| Bell, W. F. | Asheville, N. C. |
| Bender, O. J. | Pollocksville, N. C. |
| Betts, J. S. | Greensboro, N. C. |
| Blanchard, Dexter | Fuquay Springs, N. C. |

| | |
|---|---|
| Boon, A. C. | Rocky Mount, N. C. |
| Brooks, J. H. | Burlington, N. C. |
| Butler, J. R. | Dunn, N. C. |
| Caldwell, D. S. | Charlotte, N. C. |
| Campbell, Paul | Murfreesboro, N. C. |
| Carlton, J. D. | Salisbury, N. C. |
| Carlton, J. W. | Spencer, N. C. |
| Carr, H. C. | Wallace, N. C. |
| Carr, I. N. | Durham, N. C. |
| Carroll, N. G. | Raleigh, N. C. |
| Carson, H. H. | Hendersonville, N. C. |
| Chamberlain, C. H. | Yadkinville, N. C. |
| Chamberlain, E. H. | Rockingham, N. C. |
| Clark, M. H. P. | Wilmington, N. C. |
| Clayton, W. F. | High Point, N. C. |
| Click, E. G. | Elkin, N. C. |
| Cobb, Whitfield | Thomasville, N. C. |
| Coble, L. G. | Greensboro, N. C. |
| Cole, R. S. | Rockingham, N. C. |
| Coltrane, J. F. | Zebulon, N. C. |
| Condruff, M. G. | Willis, Va. |
| Conrad, W. J. | Winston-Salem, N. C. |
| Cox, L. C. | Sparta, N. C. |
| Critz, W. H. | Walnut Cove, N. C. |
| Cromartie, A. S. | Fayetteville, N. C. |
| Croom, J. D. | Maxton, N. C. |
| Dameron, L. L. | New Bern, N. C. |
| Daniel, H. C. | Salisbury, N. C. |
| Davis, I. H. | Oxford, N. C. |
| Dennis, G. E. | Charlotte, N. C. |
| Dreher, J. H. | Wilmington, N. C. |
| Edge, C. E. | Rocky Mount, N. C. |
| Edmundson, J. R. | Wilson, N. C. |
| Edwards, E. L. | Asheville, N. .C |
| Edwards, J. R. | Cary, N. C. |
| Evans, E. J. | Asheville, N. C. |
| Evans, Geo. J. | Asheville, N. C. |
| Everitt, D. E. | Raleigh, N. C. |
| Falls, P. R. | Gastonia, N. C. |
| Ferrall, R. M. | Pittsboro, N. C. |
| Fields, Paisely | Boardman, N. C. |
| Fitzgerald, Paul | Greenville, N. C. |
| Fitzgerald, W. C. | Albemarle, N. C. |
| Fleming, A. H. | Louisburg, N. C. |
| Fleming, J. Martin | Raleigh, N. C. |
| Foster, H. K. | Liberty, N. C. |

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| Frye, R. A. | Pilot Mountain, N. C. |
| Fulton, Joseph | Asheville, N. C. |
| Gallagher, R. T. | Washington, N. C. |
| Gardner, J. M. | Gibson, N. C. |
| Geddie, C. H. | Winston-Salem, N. C. |
| Gettys, J. H. | Forest City, N. C. |
| Gibbs, W. D. | Fayetteville, N. C. |
| Gibson, H. B. | Red Springs, N. C. |
| Gibson, J. L. | Laurinburg, N. C. |
| Glenn, C. F. | Asheville, N. C. |
| Gorham, L. R. | Rocky Mount, N. C. |
| Gower, F. G. | Wendell, N. C. |
| Gregory, S. W. | Elizabeth City, N. C. |
| Griffin, E. J. | Edenton, N. C. |
| Hair, L. G. | Fayetteville, N. C. |
| Hall, B. F. | Asheville, N. C. |
| Hall, C. B. | Goldsboro, N. C. |
| Hargrove, T. A. | Wilmington, N. C. |
| Haynes, F. K. | Chapel Hill, N. C. |
| Haynes, G. C. | Cliffside, N. C. |
| Hege, H. R. | Mt. Airy, N. C. |
| Henderson, H. C. | Charlotte, N. C. |
| Henderson, L. V. | Henderson, N. C. |
| Herndon, W. T. | Laurinburg, N. C. |
| Herring, G. F. | Mt Olive, N. C. |
| Hicks, R. C. | Lawndale, N. C. |
| Hilliard, S. P. | Rocky Mount, N. C. |
| Holland, N. T. | Smithfield, N. C. |
| Holliday, R. F. | Clinton, N. C. |
| Holmes, A. G., Jr. | Southport, N. C. |
| Hooks, Oscar | Wilson, N. C. |
| Horton, H. V. | Winston-Salem, N. C. |
| Horton, P. E. | Winston-Salem, N. C. |
| Horton, S. R. | Raleigh, N. C. |
| Howle, E. B. | Raleigh, N. C. |
| Humphrey, L. M. | Greensboro, N. C. |
| Hunt, F. L. | Asheville, N. C. |
| Hurdle, J. H. | Mebane, N. C. |
| Hutchins, W. Y. | Marshall, N. C. |
| Hutchison, C. R. | Walnut Cove, N. C. |
| Inman, C. L. | Mt. Airy, N. C. |
| James, D. L. | Greenville, N. C. |
| Johnson, J. C. | Durham, N. C. |
| Johnson, J. N. | Goldsboro, N. C. |
| Johnson, W. B. | Selma, N. C. |
| Jones, P. E. | Farmville, N. C. |

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| Jones, R. H. | Winston-Salem, N. C. |
| Joyner, O. L. | Kenansville, N. C. |
| Judd, J. H. | Fayetteville, N. C. |
| Keiger, C. C. | Tobaccoville, N. C. |
| Keith, H. L. | Hendersonville, N. C. |
| Kibler, W. L. | Lexington, N. C. |
| King, D. D. | Lumberton, N. C. |
| Levy, Sam | Charlotte, N. C. |
| Lineberger, H. O. | Raleigh, N. C. |
| Lipscomb, C. T. | Greensboro, N. C. |
| Liverman, A. C. | Scotland Neck, N. C. |
| Lockhart, D. K. | Durham, N. C. |
| Lowry, A. A. | Asheville, N. C. |
| Lynch, Wm. | Chapel Hill, N. C. |
| Maddox, N. P. | Asheville, N. C. |
| Malone, S. E. | Goldsboro, N. C. |
| Manning, M. P. | Robersonville, N. C. |
| Marler, J. G. | Yadkinville, N. C. |
| Martin, E. F. | Belhaven, N. C. |
| Martin, W. T. | Benson, N. C. |
| Matthews, J. E. | Wilmington, N. C. |
| McClung, J. A. | Brownsburg, Va. |
| McConnell, D. E. | Gastonia, N. C. |
| McCracken, F. W. | Sanford, N. C. |
| McGuire, W. P. | Sylvia, N. C. |
| McIver, D. C. | Oxford, N. C. |
| McMillan, E. A. | Hendersonville, N. C. |
| McMillan, M. T. | Morganton, N. C. |
| Meredith, L. J. | Vineland, N. C. |
| Moore, O. L. | Lenoir, N. C. |
| Morrow, R. M. | Burlington, N. C. |
| Murphy, R H. | Mebane, N. C. |
| Neel, J. M. | Salisbury, N. C. |
| Netherland, F. B. | Asheville, N. C. |
| Nichols, R. T. | Rockingham, N. C. |
| Nickel, W. F. | Hendersonville, N. C. |
| Norris, C. P. | Durham, N. C. |
| Olive, R. M. | Fayetteville. N. C. |
| Osborne, J. C. | Lawndale, N. C. |
| Parker, J. M. | Asheville, N. C. |
| Parrott, D. W. | Kinston, N. C. |
| Patterson, G. B. | Fayetteville, N. C. |
| Patterson, G. K. | Wilmington, N. C. |
| Peeler, C. M. | Casar, N. C. |
| Pegram, L. J. | Raleigh, N. C. |
| Perry, E. A. | Littleton, N. C. |

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| Pratt, C. B. | Madison, N. C. |
| Ramsay, R. L. | Salisbury, N. C. |
| Ramsay, W. B. | Hickory, N. C. |
| Ray, D. S. | Clinton, N. C. |
| Ray, W. A. | Fayetteville, N. C. |
| Reese, R. W. | Mt. Airy, N. C. |
| Regan, C. W. | Laurinburg, N. C. |
| Reid, L. G. | Marion, N. C. |
| Reynolds, R. D. | Lexington, N. C. |
| Richardson, E. E. | Leaksville, N. C. |
| Riddick, C. R. | Ayden, N. C. |
| Robey, W. M. | Charlotte, N. C. |
| Ross, T. T. | Nashville, N. C. |
| Russell, A. Y. | Sanford, N. C. |
| Schultz, A. M. | Greenville, N. C. |
| Self, J. R., Jr. | Lincolnton, N. C. |
| Shackelford, E. W. | Durham, N. C. |
| Shamburger, B. B. | Siler City, N. C. |
| Sherrill, R. G. | Raleigh, N. C. |
| Sinclair, J. A. | Asheville, N. C. |
| Smathers, Wexler | Asheville, N. C. |
| Smith, L. T. | Reidsville, N. C. |
| Smith, W. T. | Wilmington, N. C. |
| Smithson, C. F. | Rocky Mount, N. C. |
| Spring, W. J. | Mt. Holly, N. C. |
| Spurgeon, J. S. | Hillsboro, N. C. |
| Squires, R. M. | Wake Forest, N. C. |
| Stainback, J. F. | Wadesboro, N. C. |
| Stanly, J. W. | Wilmington, N. C. |
| Stephens, R. W. | Apex, N. C. |
| Swain, John | Ashboro, N. C. |
| Taylor, W. C. | Salisbury, N. C. |
| Thompson, C. A. | Wilson, N. C. |
| Tomlinson, R. L. | Lucama, N. C. |
| Troxler, E. A. | Reidsville, N. C. |
| Tucker, E. J. | Roxboro, N. C. |
| Turlington, R. A. | Kenley, N. C. |
| Underwood, F. H. | Roseboro, N. C. |
| Vickers, G. C. | Roxboro, N. C. |
| Wagoner, W. G. | Vox, N. C. |
| Wagoner, B. A. | Vox, N. C. |
| Waldroup, R. M., Jr. | Bryson City, N. C. |
| Walters, H. N. | Warrenton, N. C. |
| Ware, R. E. | Shelby, N. C. |
| Warren, E. R. | Prospect Hill, N. C. |
| Watkins, J. C. | Winston-Salem, N. C. |

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| Watson, D. F. | Carthage, N. C. |
| Watson, S. R. | Henderson, N. C. |
| Weathersbee, R. | Wilmington, N. C. |
| Weaver, R. C. | Weaverville, N. C. |
| Webster, B. H. | Madison, N. C. |
| Wells, J. S. | Reidsville, N. C. |
| Wheeler, J. H. | Greensboro, N. C. |
| White, J. H. | Elizabeth City, N. C. |
| White, L. | Statesville, N. C. |
| Whitsett, G. W. | Greensboro, N. C. |
| Wilkins, T. A. | Gastonia, N. C. |
| Williams, Donald | Tarboro, N. C. |
| Wiliamson, J. F. | Clinton, N. C. |
| Worsham, A. E. | Ruffin, N. C. |
| Wyche, J. E. | Greensboro, N. C. |
| Yarborough, J. A. | Wake Forest, N. C. |
| Yates, W. F. | Chadbourn, N. C. |
| Yelverton, J. H. | Wilson, N. C. |
| Young, J. A. | Newton, N. C. |
| Young, W. D. | Snow Hill, N. C. |
| Zimmerman, J. W. | Salisbury, N. C. |

## LIST OF THOSE SUSPENDED FOR NON-PAYMENT OF DUES 1915

Allen, T. B.
Anderson, R. P.
Ashburn, T. F.
Bardin, J. B.
Biddix, J. C.
Carr, R. L.
Carr, Geo. A.
Chambers, E. O.
Chamblee, F. G.
Cripliver, W. L.
Cromartie, H. R.
Darden, P. I.
Edwards, W. H.
Edwards, L. M.
Faucette, J. W.
Feagin, G. M.
Ford, S. C.
Frazier, E. A.
Graham, R. F.
Hamilton, S. J.
Harris, M. M.
Highsmith, C. H.
Jamieson, I. W.
Keerans, J. L.
Kernodle, J. F.
Lawrence, E. N.
Lee, E. G.
Lennon, C. H.
Myers, E. W.
McDowell, C. H.
Robbins, C. L.
Voils, C. U.
Whisnant, A. J.
Williamson, B. F.
Whitehead, C. A.
McAnnally, C. H.
Perkins, F. E.

# APPENDIX

## REPORT OF CLINICS

# IMPORTANCE OF X-RAY DIAGNOSIS IN DENTISTRY.

ALONZO MILTON NODINE, D. D. S.,

ORAL SURGEON AND DENTAL CONSULTANT FRENCH HOSPITAL, NEW YORK CITY. ASSISTANT DENTAL RADIOLOGIST NEW YORK THROAT, NOSE AND LUNG HOSPITAL.

Each year sees the value of good dentistry increasingly appreciated. More and more the public is asking for, and expecting better dental service.

The importance of the dentist in health conservation is now generally recognized. Physicians and surgeons, more than ever before, are seeking the co-operation of the dentist in their efforts to discover and to cure causes of physical ailments.

The dentist is having placed upon his shoulders a great and a grave responsibility. And this responsibility cannot be ignored or shifted. He must be able to help discover the hidden causes of disease, often located in the jaws, and eradicate them. He must so perform dental operations that they will not become underminers of his patients' health.

In the light of our present knowledge of the influence exerted by septic mouths, septic teeth, and septic artificial substitutes in the cause of systemic disease, it is as impossible for a conscientious, educated dentist to practice his profession without the use of the X-Ray as without the use of a sterilizer. The more skillful and the more careful the dentist, the more keenly he recognizes the necessity for and the value of the X-Ray.

The dental surgeon is no longer concerned solely with the repair, the treatment, and the replacement of teeth. He is concerned more seriously with his patients health and life.

Evidence accumulates with increasing rapidity that abscesses on the ends of devitalized teeth play a most important part in the cause of many cases of endocarditis, rheumatism, neuritis, nephritis, gastric ulcer, appendicitis and other diseases. And it is only by the extensive and systematic diagnosis with the X-Ray that these abscesses are discovered. Experience brings out the startling and almost unbelievable fact that about 90 per cent of the devitalized teeth have either incomplete or no root fillings. Fully 75 per cent of these show destruction of the bone and infection around the apical ends of roots. All such cases may be demonstrated by the radiograph.

While the X-Ray is of utmost value in discovering these foci of infection, it has a still greater value when employed for the purpose of making the complete filling of most of such roots possible and certain.

The employment of the X-Ray removes diagnosis and treatment of dental diseases and conditions associated with them from the realm of guess work and doubt to that of comparative positiveness and certainty.

The X-Ray clearly demonstrates that surgical operations on the teeth must be performed in surgical manner. When so done, and checked up by the X-Ray, they may enjoy an immunity and permanency hitherto impossible to attain.

The orthodontist, the prosthodontist, the exodontist, the oral surgeon, and general practitioner each find the X-Ray of peculiar and positive value in the diagnosing and treatment of the special conditions which may come under his care.

In co-operation with the physician he may employ the X-Ray and interpret its findings with a knowledge and skill that the physician rarely possesses.

The X-Ray not only saves the patient time and money, but what is of supreme importance—it may save his health, which is priceless.

Its use establishes in the patient's mind a feeling of security and confidence.

The dentist finds in its employment an interest, a satisfaction, and a security that makes possible, so far as it is within the range of his special knowledge and training, his assuming the great and grave responsibility of protecting and preserving the health of his patients.

In these general terms a fair estimate of the value of the X-Ray in dentistry may be described.

What the search-light and chart are to the navigator of a ship, the X-Ray and radiograph are to the dentist.

That captains sailed into difficult and dangerous harbors in foggy and uncertain weather without the search-light and chart is true. That they would continue to do so without them is equally true.

That dentistry was practiced and was practiced well before the use of the X-Ray is also true. That it is, and perhaps would be practiced well were the X-Ray never used is also true—but there would be as much difference between a captain entering a dangrous harbor without a chart and search-light at night with a valuable cargo as a dentist trying to diagnose and operate upon an obscure and uncertain case without the X-Ray.

Yet to point out what is the greatest thing the X-Ray has done for dentistry is difficult for me to state with any degree of confidence or satisfaction to myself.

Nevertheless it may be most positively said that the X-Ray has *reformed* and *revolutionized* dental practice.

One thought comes to me with persistent insistance. The X-Ray has made us practice better dentistry. The X-Ray has done away with, to a large extent, that—"I'll do the best I can and take a chance." Now, the X-Ray not only convinces us that the chances I and others took were disastrous, but it shows us something still better; we can eliminate the necessity and the temptation to take the chances which we formerly took.

When we didn't use the X-Ray, if we broke off a piece of root in exacting a tooth, we took a chance, left it in, and expected it to work out.

Now, we don't take that chance, because too many radiographs bear witness to the fact that a piece of root left in is a dangerous practice.

When we didn't use the X-Ray, if we couldn't fill a root canal to the end, we took a chance and filled it as far as possible and then took another chance that it wouldn't cause any trouble.

Now, because we use the X-Ray, we can fill more roots to the apex, and those we cannot fill, we either extract the tooth or resect the roots.

When we didn't use the X-Ray and certain teeth were missing or unerrupted, we took two chances,—one that they were not there, or that they were. In either case we took a chance of trouble. We might perform a useless operation or we might neglect to perform a necessary operation.

How many of us have spent a great deal of time looking for root canals that existed only in our imagination, and how many times we didn't fill root canals because we didn't imagine they were there.

But the time uselessly expended, and the potential source of trouble we left unattended could have been done away with by the employment of the X-Ray.

In the field of oral surgery, we find the wrecks and wreckage of careless, unsanitary, septic, and sometimes almost criminal dentistry. I find almost seventy-five per cent of the oral surgery I do is the result of bad dentistry.

When these patients come to the oral surgeon,—the Court of Last Appeal, to save their health, and perhaps their life, imagine the responsibility when perhaps the skilled efforts of all others of the healing art have given no relief. Imagine the carnage that would ensue did the oral surgeon not first have radiographs of the teeth and jaws,—charts and surveys of these organs.

It would seem almost impossible for oral surgery to have attained the high standard of excellence it now has attained if the use of the X-Ray had been denied it.

The limitless conditions in which radiograps serve the oral surgeons are too numerous to mention.

But oral surgery answers that question so frequently asked,—"What are we going to do with those teeth whose root canals we cannot fill?"

Oral surgery tells us to fill those canals as far as possible, and then resect the roots. If this cannot be done better extract the tooth. Oral surgery also answers that other question also asked, "What are we going to do with those teeth which we cannot cure of a chronic apical abscess?" Disinfect and fill the root canals, and oral surgery will cut out the granuloma and resect the septic eroded root end.

But only by the frequent and consistent employment of the X-Ray is it possible for the oral surgeon to know how far the canal is filled and the extent of the apical infection.

## THE RADIOGRAPH IN RIGGS DISEASE.

The use of the X-Ray as a means of diagnosis in cases of pyorrhea alveolaris is quite as essential, quite as valuable as in any other field of dentistry. That the X-Ray is not more generally used by those who are making the treatment of this disease their special work is to be deplored. Did specialists realize and appreciate the vast amount of doubt, disappointment, dissatisfaction, mistrust and wasted effort for which the failure to employ the X-Ray is responsible, they would not have that unfounded faith which they now have in their unassisted visual and digital examinations.

As a form of treatment, the X-Rays have doubtful, if any, value. The mode of applications to any part of the mouth, except to the incisors and canines is fraught with such difficulties as to be impractical were it desirable to use them. The element of danger in the continued treatments with the X-Rays also precludes their employment for the treatment of this disease. Taking everything into consideration, the chief and perhaps the only value the X-Rays have in the field of the Riggs Disease specialist is the taking of the radiographs for diagnostic, record, and research purposes.

That the X-Ray is an infallible guide must not be entertained for a minute, but all symptoms, signs and hints, taken in conjunction with the radiographic examination, will become more clear and the diagnosis more positive.

The most apparent use to which the X-Ray may be applied is to find out the amount of bone destruction or absorption about the roots of the teeth afflicted with Riggs Disease. Instrumental examination is about as exact and certain as the complete filling of root canals without a radiograph. How certain that is may be judged from the fact that less than five per cent of the roots into which root canal fillings are placed, reach the apex.

The radiograph will not only show the amount of absorption of the alveolar bone, but will, within certain limits, show the state of the attachment between the alveoar bone and the tooth. It will also show the length of the root and the amount of leverage it may stand.

How great a help this is will be well understood by those who have treated cases of Riggs Disease, believing, from examination without the X-Ray, that there was sufficient alveolar bone about the tooth to justify its retention or that the tooth was sufficiently long or strong to withstand leverage, or that the attachment between the bone and the tooth was sufficiently secure to yield to treatment; then after the most expert instrumentation and medication, the teeth came out within a short time.

The most common mistake made by those who treat Riggs Disease without using the radiograph is that of treating chronic alveolar abscesses for Riggs Disease. The number of cases in which chronic alveolar abscesses discharge their pathological contents between the approximal surface of teeth is exceedingly great. And this simulates Riggs Disease so closely that it is a continual puzzle to those who treat this disease why such teeth fail to respond to treatment. This condition of affairs is not confined to the anterior teeth or bicuspids, but also includes the upper and lower molars.

The presence of undiscovered blind abscesses is also another condition that confuses both the diagnosis and the treatment of Riggs Disease. Such teeth having lowered both the systemic and local resistance, the efforts of the dentist to restore normal tooth function and overcome the general infection, supposedly due solely to the Riggs Disease, are defeated and nullified by the constant and insidious infection produced by these apical abscesses. This suggests that any teeth to which are attached caps, crowns or bridgework, or any devitalized teeth should be subjected to radiographic examination prior to treatment.

The frequency with which, after prolonged treatment and supposed cure, teeth come out, whose roots are absorbed, or eroded, is another state of affairs that the radiograph would largely have foreseen. The wasted effort, the disappointment and dissatisfaction for which this is responsible is very great. Roots whose apicies are as sharp as pins, roots which have been eroded or corroded, are left to continue in the mouth as a source of infection and irritation. They are beyond the hope of cure, and delay the restoration of healthy conditions about savable teeth.

Not a few teeth about which Riggs Disease is exerting its malignant influence have undergone the process of excementosis. The extent of this excementosis often is so great as to call for the extraction of the tooth or teeth. The difficulty of treatment and confusion that such an added pathological condition entails on the dentist makes this one of the most serious problems that confronts him.

Since the treatment of Riggs Disease resolves itself into a reorganization of the mouth, and an attempt to restore function to as near normal as possible, the employment of the radiograph will be found to be the most valuable and trustworthy guide we have to help attain this end. It is a continual surprise and wonder to those who now use this agent as a diagnotic help, to find those unsuspected and strange conditions which only the radiograph or autopsy could reveal.

Hundreds of radiographic examinations I have made force upon me the conviction that I and others who hitherto have not used the radiograph have been indulging in some very wild speculation and guess-work. This has entailed a vast amount of not only useless effort, but, in many cases, harmful effort.

When we review the great number of conditions that may produce chronic irritation and lay the foundation for Riggs Disease, it will be realized that a radiograph examination is of such value as to be almost indispensible for anywhere near a proper diagnosis.

At first thought, one has such confidence in his ability to see with his eyes and feel with his fingers, that the X-Ray seems unnecessary. But even the most expert fail to find, and often overlook what the X-Ray does find, that the greater experience one has had with the X-Ray, the more convinced one becomes that one's ability to discover by any other means the conditions that the radiograph reveals is greatly over estimated.

It is only necessary to name some of the things which, in the treatment of Riggs Disease, have been overlooked by the eye and the instrument! For example, pieces of tooth-pick, gutta-percha, amalgam and cement pushed up between teeth, broaches, bits of broken instruments, ligatures and rubber-dam have been found. Perforated roots with the post of a porcelain crown sticking out, lost or forgotten roots and infracted teeth causing chronic and persistent irritation, cysts, and necrotic aras.

Often, with all conditions quite right, as the tube, exposure and angle of the rays, it is possible to find deposits on the roots and pulp stones in the canal.

It is quite advisable, if not necessary, to have a radiographic examination before beginning treatment as part of the diagnosis. It is also well, after the treatment is completed, to again examine with the X-Ray as a matter of record. After a year or two it is quite interesting to again examine with the X-Ray to find out if regeneration of the bone has taken place.

## X-RAY MACHINES AND EQUIPMENT.

Many of you will be purchasers of X-Ray machines, and will be interested in all types and kinds of X-Ray equipment at prices ranging from seventy?five dollars, up.

There are three types of X-Ray machines on the market. The high frequency machine, or the suit-case type, costing from $75 to $250; the Induction Coil with an electrolytic interrupter, ranging in price from $250 to $500; and the interrupterless or transformer, ranging in price from $275—for alternating current to $1,000 or more for direct current.

Many men will be tempted to buy one of the smaller, cheaper, suit-case type of machines, called the high frequency. While the initial cost of these machines is lower than the other types, the X-Ray tube itself deteriorates very quickly, and soon the cost of replacing the tube brings the price up to, or beyond, that of the other type. Again others believe they will experiment with the smaller, apparently simpler and cheaper machine first and then buy a better machine later. Those who have bought this type of machine have, after a short experience, realized either its limitations, its failure to live up to expectation, or the cost of up-keep.

So my advice to those who contemplate buying an X-Ray equipment is buy either a good coil machine, or an interrupterless.

For alternating current, which is the kind supplied almost everywhere, except in the largest cities, the interrupterless type of machine is more efficient than the coil, everything else being equal. For about the same money, say $275, an interrupterless machine may be purchased, which is about twice as efficient as a coil machine (of the same price), on the alternating current.

For direct current, a coil machine will be found quite efficient, costing about $275; but the interrupterless machine, which undoubtedly is more efficient, will cost about twice as much.

Another advantage in buying an interrupterless machine for alternating current is the attachment which also goes with it for the violet ray or high frequency.

To summarize my advice, which is gained from my experience in the use of both types of machines on both currents, except for those who may use the X-Ray when associated with a physician or those who intend to do extensive radiography as a specialty, buy an interrupterless machine of the type shown here. I would also advise the purchase of two Tungston target seven inch X-ray tubes. Have one in reserve in case anything goes wrong with the other. A separate tube stand, of which the one shown here is a good type, with a lead glass tube shield and a lead rubber hood.

I will not go into the description of the production of X-Rays, as this may be better found in some of the books I'll recommend.

## TECHNIC OF TAKING RADIOGRAPHS.

After you have had determined for you (or have gained the knowledge by experience) the proper vacuum of the tube, and the proper exposure, test your tube before taking a radiograph. That is see if it meets the requirements that have been determined.

The tube is usually in the right condition to take a radiograph when it shows that beautiful olive green color and a distinct division in the tube between the active and inactive hemispheres.

It is well to do this in the presence of the patient without exposing the patient to the rays. This will accustom the patient to the crackling or snapping or whirring of the tube and machine, and will also tend to dispel any apprehension.

Then seat the patient in your chair, with the head in an upright and comfortable position for almost every radiograph. Then focus your tube with the centre of the rays on the apex of the tooth to be radiographed, with the poles of the tube parallel with that part of jaw to be radiographed. Then have the rays directed at right angles to a plane that will bisect the angle between tooth and film, and the Tungsten target about 14 to 16 inches away from the part radiographed.

In the lower jaw, because of the conformation of the jaw, it is possible to place the film parallel to the molars, and therefore the ray will be directed at right angles to the teeth. But in the upper jaw, because the alveolus slopes off into the palate, the rays must be directed so that they will be at right angles to a plane that will bisect the angle formed by the tooth and the film. Or, instead of the rays being directed at an angle of 90 degrees, the angle will be somewhere between 55 degrees and 45 degrees, for the molars, bicuspids it will be about 50 degrees to 45 degrees, cuspids about 45 degrees to 40 degrees, and centrals and latterals 40 degrees to 25 degrees.

After having approximately adjusted the tube, flash it once or twice to acquaint the patient with the procedure, and then remove the film from the lead box, turn down the sharp corners, and manipulate it a little so as to make it a little more flexible, place it in the patient's mouth, let us say for an upper molar. Have it so placed that the red packet containing the film will come to about the occlusal surface of the tooth. With patient's thumb on the film and the other finger on the side of the cheek or temple for the upper jaw, again adjust your tube to any change in the position.

Caution your patient not to move under any circumstance, and then give the required exposure.

Then remove the red waxed paper, which may have become wet and soak into the black paper, which is not water proof, and spoil the film.

The film should then be placed in the lead box until you are ready to develop it.

A small light-proof closet with a ruby light with a shelf may be used for developing and fixing your films. Or if you haven't a closet handy, a box may be bought or made, one side of which has light-proof sleeves. The top of the box may have a ruby glass window through which you may watch the progress of developing. The ruby light, if an electric bulb, may be inside, or outside if gas or candle. This light will naturally be at the back of the box. The box may be from eighteen inches to two feet wide, twelve to fourteen inches deep, and about fourteen inches high.

Develop your films until both sides look about alike; or until when held up to the red light, the light does not show through.

The films, after fixing and after thorough washing, may be hung up to dry by means of pins, clamps, special film holders, or a tray made by tacking cheese cloth over a frame.

The X-Ray negatives may be described, for the sake of convenience, as a shadow picture, a semi-transparent silhouette, or, it has sometimes been called, a radiograph. It registers the different degrees of density or transparency of the structures through which the X-Rays pass. Therefore the denser substances or structures obstruct the rays of the X-Ray and affect the film but little or not at all. They show white or clear in the film, such as gold crowns, amalgam fillings, gold fillings, and gutta percha. The tooth substance, less dense or more transparent, the X-Ray negative shows a little darker or grayer; the bone, still grayer or darker. The pulp chambers and root canals, if not filled, whether the pulp be vital, devitalized, or removed, will show still darker or grayer. The soft tissues will, with a proper exposure, show up quite dark, and where there is no bone it will be black or very dark gray.

In the prints taken from the negatives, and the prints seen in books, magazines and lantern slides, these shades are reversed. Where there is no bone, the print will be white, the soft tissues a slight shadow, the pulp canals and pulp chambers quite light, the bone a little darker, the tooth still darker, and the filings black, etc.

## READING THE X-RAY NEGATIVE.

Suppose, for example, you have an upper molar with a cap on it, a second bicuspid with a large amalgam filling, and a first bicuspid with a porcelain crown on it. On the buccal side, over these teeth, the gum is puffed up and all these teeth are sore. Suppose this patient came down here from New York for a visit and you wanted to find out which tooth was the cause of the trouble. The quickest way out of your difficulty would be to take a radiograph or have some one in town take one for you. After developing, fixing, and drying the radiograph, you look at it with a piece of frosted glass between the film and a strong light.

The first two things that will attract your attention, perhaps, will be the light or white gold crown. And you see that it does not fit the tooth,—it stands off like a skirt. Next you will look to see if the root canals are filled. Oh, yes, the palatal root canal is filled all right,—that white line goes right to the apex. Then you will notice two other short white lines. You'll look for the two buccal roots and discover that the root canal fillings go less than half way up to the apex.

You know that any tooth whose root canal fillings don't go to the apex is to be suspected, so you look at, let us say, the anterior buccal root, and right over the apex you see a little dark shadow like a cap, distinct, sharp and defined. Sometimes this little dark area fades off into the bone with no sharp outline. This is an apical infection, a blind apical abscess, and if sharp and defined, it is chronic, and long standing. The infection has gradually dissolved away the bone, so at that particular spot there is no bone and there is a distinct granuloma. But over the palatal root, dipping down, you will notice a faint light uniform line—and above the palatal root, in spite of its being filled, you'll notice a large dark area. Must be a large abscess! Not at all. The line is the floor of the maxillary sinus, and the dark area is the maxillary sinus.

Now you will notice the second bicuspid. The large amalgam filling apparently extends into the pulp chamber. But you look for the canal filling and instead of a white line, you find a dark line extending to the apex. The root canal isn't filled at all! but there is just a faint dark line around the apex which continues down the sides of the root. Root canal unfilled, and no marked apical infection, but the amalgam filling apparently extending into the pulp chamber!

Now we'll look at the first bicuspid,—we can see the post of a porcelain crown as a wide white line, and a little root canal filling beyond that, but the balance of the palatal canal apparently unfilled. The buccal canal is not filled at all. Perhaps the post looks as if it penetrated the side of the palatal root. The apical end of the palatal root seems enlarged and swollen, just as if some one had hit it on the head and it swelled up, but no dark line or dark space around this end of the root. Now, what's our diagnosis?

First on the molar an apical infection with a chronic blind abscess on the anterior buccal root, due to the fact that root canals are not filled properly. The crown also does not fit. It will be necessary for you to take off the crown, fill the two buccal root canals, and either ionize or resect the anterior buccal root, and make a new crown, as there is a large pocket between the second bicuspid and the molar. The patient will lose this tooth if this is not done. It must also be done to prevent any systemic infection such as neuritis, rheumatism, heart disease, etc.

You test the second bicuspid with a hot instrument, or violet ray, or galvanic current, and discover the tooth to be vital. Nevertheless you may safely diagnose this as a pulp congested from the close proximity of the large amalgam filling and you advise the removal of the amalgam filling, sterilizing the cavity and lining the cavity with cement. This may account for some of the pain.

The first bicuspid has an acute abscess, due to one root not being filled at all. The swollen appearance of the apical end indicates that, and perhaps a perforation of the root.

You may imagine your perplexity when confronted with a condition like this. Also, take into consideration the vast amount of information you have, and the certainty with which you may point out these things to your patient.

## MISTAKES TO AVOID.

In the upper jaw, be very careful not to mistake the maxillary sinus for an abscess cavity. Nor make the mistake of saying the root penetrates the floor of the maxillary sinus. Remember the floor of the sinus is uneven, often divided and dips down between the two walls. The penetration of the floor of the anthum by these roots is not common.

In the anterior teeth between the centrals, don't mistake the incisive foramen for an apical abscess. This foramen is often quite diamond shaped, and often oval in shape.

Also, unless you take two radiographs at different angles, sometimes you'll think the first bicuspid has but one root. It is also well to take two or three radiographs of the first upper molar.

In the lower jaw don't mistake the mental foramen for an apical abscess on the root of the bicuspid. Also don't mistake a part of the inferior dental canal for an infected area.

Also, unless the angle is quite right, don't be too sure that canals, which are quite large, and the root canal fillings apparently go to within a very short distance of the apex, are not filled to the apex. When the filling goes through you may be absolutely safe. Don't be too positive about finding pulp stones.

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## WHAT TO EXPECT AND WHAT NOT TO EXPECT FROM A RADIOGRAPH.

A radiograph will not tell whether a tooth is vital or devitalized unless the root is filled or there is an apical infection or apical abscess. Some root fillings are transparent to the X-Ray and therefore the root canals will appear unfilled. But even in such cases it has been found that filling materials of this character, most of them anyway, are not good root canal fillings, and it is advisable to replace them with something better, such as rosin, chloroform and gutta percha, pushing the gutta percha or chloropercha through the apex.

Don't expect every radiograph to show whether a filling does or does not encroach upon the pulp. Sometimes the angle at which it is taken will make it appear that it does and sometimes that it does not.

An X-Ray will not show all apical infections. There may be apical infections in which the bone has not been destroyed.

Do not expect a radiograph to show all fistulous tracks. Sometimes it will and most times it will not.

Unless two, and sometimes three, radiographs, at different angles, are taken all the roots of an upper first or second molar will not be shown clearly.

Unless two or more radiographs at different angles are taken, do not expect a radiograph to show whether or not a root is perforated.

Radiographs are expected to show foreign bodies in the teeth and jaws, such as metal fillings, pieces of fillings, gutta percha, cement. broaches, missing or forgotten roots, misplaced or impacted teeth, or cysts. When wires are placed in the root canals it will show how far the canal is accessible, the curvature of the root and the best means of access. Also remember that chloropercha and gutta percha are the best root canal fillings so far devised, because they may be pushed through the apical foramina without danger if asceptic precautions have been taken. Also they will show up clear and distinct in the radiograph.

## VALUE OF THE X-RAY TO THE DENTIST.

No instrument or piece of apparatus that a dentist may buy will, for the outlay, be productive of so much good in all directions. The increasing interest that physicians and surgeons are showing in the septic conditions found in the mouth suggests the advisability of the dentist, for his own protection, to employ the X-Ray more extensively than he hitherto has done.

Every man who uses the X-Ray becomes a better dentist. He realizes, as never before, the possibilities of his profession. The X-Ray not only shows wherein he and others have failed in the past, but it is a most excellent guide to save him trouble in the future. The dentist, with the X-Ray at his command, goes at his work with a confidence and certainly that he did not possess before. This state of mind and attitude is transmitted to a great extent to his patient.

At the expenditure of about ten to fifteen minutes, including adjustment of apparatus, exposure, developing and fixing, and less than ten cents cost, including the film, developing and fixing solutions, information may be obtained that perhaps will save the patient's tooth, his health or life, and the dentist needless trouble, discouragement and perhaps failure.

I feel absolutely confident that the man who employes the X-Ray in his practice will be able to increase his fees considerably and at the same time give his patients better service, more scientific dentistry than the monetary increase would seem to indicate.

The man who uses the X-Ray indulges in something that is not only profitable but intensely interesting and highly illuminating and he will be able to undertake operations which were not attempted before, with a confidence that makes for success.

I am speaking out of my personal experience, and the experience of my friends who are using the X-Ray. It is one of the best recommendations and the most convincing testimony of the further fact that good dentistry, that preventive dentistry, is the most economical dentistry both in health and money, because the radiograph graphically brings to the patient the realization as nothing else will, that decay and disease follow with remarkable persistency neglect and indifference. It also furnishes substantial backing to the fact that health is priceless, that the preservation and conservation of the health of the mouth is of most vital importance in the maintenance and restoration of this priceless asset.

## BOOKS AND ARTICLES TO READ FOR FURTHER STUDY.

Prof. Satterlee's Dental Radiology, $3.00.

Rapier's Elementary and Dental Radiography, $5.00.

Sturridge's Electro-Dental Therapeutics, $2.75.

This is a most excellent book for anyone who has electric apparatus to have in his library, and I strongly recommend it, not only for the chapters on radiograph, but those on ionization and the violet rays.

I also recommend the members to send for George M. Brady & Co's. book, The Paragon X-Ray Book, 754 South Western Ave., Chicago.

# CONDUCTIVE AND INFILTRATION OR LOCAL ANESTHESIA.

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Conductive anesthesia is the method by which the main nerve or nerves supplying the bone, the teeth, and the tissues in the oral cavity are intercepted or blocked at some convenient point, either before these nerves enter, or after they leave important foramina. The anesthesia being effective over an area supplied by these nerves whether teeth, bone or mucous membrane.

Infiltration or local anesthesia is the method by which limited areas of tissue, bone, teeth or soft tissue are anesthetised by the diffusion of the solution through pores of the bone, and thus reach the nerves supplying the bone and the teeth, and diffusing through the soft tissues affecting the nerves which supply these structures.

A little review of the anatomy of the jaws will indicate where each is most applicable.

The teeth and bone of the lower jaw or mandible are supplied by *inferior dental nerve* which enters the bone by the *inferior dental foramen* on the lingual surface of the ramus, about half way between the anterior and posterior border, and about three-eighths to one-half of an inch above the occlusal plane of the lower teeth. This nerve passes through the inferior dental canal in the body of the bone giving off branches to supply the teeth, bone, periostum and mucous membrane. In about the region of the second bicuspid this nerve divides into a mental branch and an incisive branch. The incisive branch continues in the body of the bone to supply the canine and incisor teeth and anastomoses with the nerves of the opposite side, and the mental branch comes out of the mental foramen below and between the first and second bicuspids. This nerve supplies the skin and mucous membrane of the chin and lower lip and about the incisor teeth anastimoses with the nerve of the opposite side.

Accompanying the inferior dental nerve, before this nerve enters the inferior dental canal, in front of it and a little deeper than the inferior dental nerve is the lingual nerve which is connected with the inferior dental by a short branch. This nerve supplies the lingual mucous membrane and periosteum. So much for the lower jaw.

The upper jaw is supplied by the (1) posterior superior dental nerve which enters the bone through the posterior dental foramina at the tuberosity, the tuberosity being that part of the outer or buccal surface of the upper jaw below and back of the cheek bone and above the last molar tooth; (2) the middle superior dental which springs from the infraorbital nerve in the posterior, sometimes the anterior part, of the infraorbital canal; (3) the anterior superior dental nerve springs from the infraorbital nerve in the anterior part of the infraorbital canal. (4) The anterior palatine nerve makes its appearance upon the palate through the posterior palatine formania about three-eighths of an inch or one centimeter above the alveolar border of the third molar tooth. (5) The naso-palatine nerve passes through the anterior palatine or incisive foramen in the palate back of the incisor teeth.

1. The *posterior superior dental nerves* supply the bone, periostum, gums and buccal mucous membrane over the molar teeth and antrum.
2. The *middle superior dental nerves* supply part of the antrum and bicuspid teeth and sometimes the first molar.
3. The *anterior superior dental nerve* supplies the floor of the nose and the incisor and canine teeth.
4. The *anterior palatine nerve* supplies the gums and roof of the mouth and anastomes with the naso-palatine nerve about the first bicuspid or canine tooth.
5. The *naso-palatine nerve* supplies the mucuous membrane behind the incisor teeth.

If we will look at a dried skull, we will find that the bone of the upper jaw is more porous than that of the lower jaw. There are more small foramina in the bone surrounding the teeth. For that reason there are more opportunities offered for any solution to reach the nerves. This explains why infiltrative anesthesia is more efficient in the upper jaw than in the lower jaw.

In the lower jaw you will note that there are very few foramina in the bone except that surrounding the incisor teeth. Around the molars and bicuspids the bone is very dense, and few, if any, foramina. Therefore conductive anesthesia, everything else being equal, is more efficient than infiltrative anesthesia in the lower jaw.

## ADVANTAGES OF CONDUCTIVE ANESTHESIA OVER LOCAL OR INFILTRATIVE ANESTHESIA.

(1) Its longer duration. Conductive anesthesia of the inferior dental nerve will last from an hour to an hour and a half or two hours. A conductive anesthesia in the upper jaw will last from an hour to an hour and a half.

(2) With one or two injections larger areas may be anesthetized. With a right and left mandibular injection, the entire lower jaw may be anesthetized.

(3) Infiltration into infected areas is avoid! With local anesthesia injection into infected areas is not so effective as in non-infected areas, and secondly, the liability of spreading the infection is greater.

(4) The injection for conductive anesthesia is less painful than the local or infiltrative anesthesia because the solution is injected without pressure into loose tissue.

(5) Conductive anesthesia has the advantage over general anesthesia such as nitrous oxide and oxygen, in that during the operation, the operator's mind may be concentrated almost entirely upon the operation. This means a better and quicker operation.

(6) The operator has more time in which to operate and can do better work.

(7) The comparatively bloodless field of operation is also in its favor.

(8) The co-operation of the patient is secured and may largely be employed to assist the operator.

(9) Last, but not least, the factor of surgical shock is eliminated as well as the first severe post operative pain.

Conductive anesthesia is indicated in almost all operations in the lower jaw such as the removal of impacted molars, or other teeth where bone cutting may be necessary. The extraction of infected or non-infected teeth, amputation or resection of roots, curettement of cysts, removal of growths, removal of pulps and preparation of sensitive cavities and removal of highly inflamed pulps, etc. It is not indicated if the region back of the third molar where the injection is made is highly inflamed or infected.

In the upper jaw it is indicated where several teeth are to be extracted, or where deeply imbedded or impacted teeth are to be re moved. It is also indicated where root resection is necessary or the preparation of sensitive cavities, removal of infected or highly inflamed pulps, the curettement of cysts, and the removal of growths or entry into the maxillary sinus is necessary. It must not be forgotten that no injection, local or conductive, should be made into an infected area.

## TECHNIC.

The mandibular injection is made in the following manner:

On the left-hand side of the jaw the operator's index finger of the right hand with the arm extended at right angle to the body is passed along the buccal side of the lower jaw, starting about the region of the bicuspid teeth, as the finger passes backward, using just the slightest pressure the external oblique line is felt. On the right hand side the left hand is used to palpate. This line is continuous with the anterior border of the ramus. Pass the finger backward with the ball of the finger on this line until the finger is on the occlusal plane with the molars. Then the finger is turned until the nail faces the tongue and the ball the cheek. The finger nail will then come in contact with internal oblique line, sometimes quite marked, and at other times hardly detectable. The external oblique line and the internal oblique line form a small triangle with the base toward the molar tooth, and called the retromolar triangle. This triangle will be usually external to the median line of the molars. Keeping the finger in this position with the nail on the internal oblique line, and about one centimeter or three-eights of an inch above the occlusal plane of the molar teeth, the finger is retracted, slightly drawn toward the cheek. This spot is painted with iodine on a little cotton rolled on a tooth pick. Keep the hand in this position once the internal oblique line is found. With the syringe in the left hand, held like a pen, grasped between the thumb and the first and second fingers, and with the barrel of the syringe in the region of the canine tooth of the opposite side direct the needle to the spot painted with iodine, on a plane about one centimeter or three-eighths of an inch above the occlusal plane of the molars, pierce the mucous membrane and go right up against the bone or internal oblique line. Be sure that you feel the bone with the needle. Retract the needle from the bone and periostum, bring the barrel of the syringe toward your right-hand side until you feel the needle pass the bone. Then push the needle in about one-quarter of an inch, inject about five or six drops of the solution to anesthetize the lingual nerve. Now pass the needle backward, keeping in the same plane, about one centimeter or three-eighths of an inch above the occlusal place of the molars, and trying to keep in touch with the bone, push the needle in until about one inch or until a quarter of an inch is left between the hub and the mucous membrane. Now inject about 1½ c. c. of the solution and withdraw your needle, without touching the piston. When the needle is withdrawn, what remains in the syringe may be ejected. This will prevent drawing into the syringe blood, necessitating its sterilization.

In making this injection no force is required to reach the area of the inferior dental foramin. It is not necessary to reach the foramin with the needle so long as the needle reaches what is known as the mandibular sulcus—an area about the size of a quarter whose center is posterior to the inferior dental foramen. This area is filled with loose connective tissue which readily allows this solution to reach this inferior dental nerve.

In about fifteen minutes to half an hour, the molars, bicuspids and perhaps the canine teeth, and the bone and mucous membrane on one side of the jaw will be anesthetized.

You may apply the following tests to find out if the anesthetic has had its effect: Take a pair of college pliers, press against the gum below the alveolar border on the lingual side of the tooth or teeth to be operated upon. This is to test if the lingual nerve has been anesthetized. Watch the patient's eyes without suggesting what your purpose is. If the patient winces, wait a little longer. If the patient does not wince and the patient's tongue feels numb, you may feel sure that the lingular nerve has been anesthetized.

After waiting about fifteen minutes, the patient may say that the lip feels numb, swollen, cold, etc. Then test at the canine tooth and the tooth to be operated upon by pinching the gum at the cervical border with the pliers and at the same time giving a slight downward pull. If the patient winces, try the opposite side and observe the difference.

If you intend to work on the first lower molar, test on the buccal side of the gum in the region of that also. If the patient does not wince at the canine and does wince at the molar, you may conclude that it is one of those cases in which the long buccal nerve comes off from the inferior maxillary nerve higher up, and is not reached by the solution. This condition may be taken care of by injecting into the buccinator muscle about on the level with the alveolar border and parallel to it. Insert the needle about half to three-quarters of an inch and inject slowly about half a cubic centimeter.

If, after waiting twenty minutes to half an hour. trying the usual tests, you find that the anesthetic has not had is effect, give another injection. If needles, syringe, and solution are steril, you may give any reasonable amount of the solution with safety,—from six to eight cubic centimeters.

Some operators give only this injection in the lower jaw. If they have the incisors upon which to operate, they give two mandibular injections to take care of the anastomoses.

Others prefer to give for the incisor teeth, two mental injections, or a mental on one side and a mandibular on the other.

The mental injection is given in the following manner: the mental foramen is palpated for with the index finger of the right hand on the left side of the patient's jaw. It will be found midway between the alveolar border and the lower border of the jaw between the bicuspid teeth. With the index finger on this spot on the face, pull the lip away with the thumb, paint the mucous membrane at the fold with iodine, insert the needle at the fold, push it down and feel for the foramen. If you find it, inject slowly about one cubic centimeter; if not, inject just the same, about the same amount of solution.

Withdraw the needle and repeat on the opposite side, using the right hand to inject and the left hand to palpate. Then, with your thumb, massage the solution into the mental foramen.

It is also well to inject locally on the lingual side, midway between the gingival margin and the apex of the tooth, slowly injecting the solution as the needle proceeds toward the apex.

In about ten minutes it will have its effect. Then make the tests in the manner previously described. The effect will last about an hour.

In the upper jaw, if we wish to operate on the three molars or the region which they occupy, with the jaws closed, or nearly so, we raise or retract the cheek, taking the cheek between the index finger and thumb of the left hand on the right side of the patient's jaw, the index finger inside and the thumb outside. At the fold of the mucous membrane, over the last molar tooth, paint the mucous membrane with iodine. Taking the syringe in the right hand, held like a pen, direct the needle upward about the middle of the disto-buccal root of the tooth next to the last molar tooth, and over the apex of the root of the last molar tooth; then pushing the needle upward, back of the zygomatic process, keeping as close to the bone as possible until about an inch of the needle has disappeared. Then slowly inject one and one-half cubic centimeters to two cubic centimeters of the solution. In about ten minutes the solution will have its effect.

For the mucous membrane on the palatal side, we inject the anterior palatine nerve at the posterior palatine foramen. This is found less than half an inch above the alveolar border of the last molar tooth. Paint this spot, pierce the gum at right angles to the process, go in until you strike the bone and then slowly inject four to six drops, *no more*. If more than this amount is injected, it is liable to infiltrate the muscles of the palate and produce a choking and disagreeable feeling in the throat.

The infraorbital injection is made to take care of the region between the first molar and central incisors. It is made in the following manner. With the index finger of the left hand for the right-hand side of the patient, and index finger of the right hand for the left-hand side of the patient, the infro-orbital foramina is palpated. This will be found just about one-fourth to three-eighths of an inch below the middle of the lower border of the orbit. With the index finger firmly on this spot and with the jaws closed, raise and pull out the lip with the thumb. Then paint the mucuous membrane of the lip just posterior to the canine tooth. Instead of injecting into the fold above the canine tooth, inject into the lip tissue and direct the needle directly upward toward the foramina under your index finger. As the needle approaches the foramen, the needle may be felt with the index finger. Now slowly inject about one to one and one-half cubic centimeters of the solution. Care must be taken that the needle does not go higher than the lower border of the orbit. Stop about one-fourth to three-eighths of an inch below the lower border. Withdraw the needle and with the ball of the thumb, massage the solution into the foramen.

In about five to ten minutes, or less, the solution will have its effect. Then inject a few drops on the lingual surface of the tooth or teeth to be operated upon.

If the centrals or laterals are to be operated upon, it is well to inject five or six drops on the opposite side of the median line above the middle of the roots of the central and lateral teeth. This will take care of the anastomoses from that side.

Then the incisive injection for this incisive foramen on the lingual surface is made by piercing the small papillar back of the incisor teeth, called the incisive papillar. First paint with iodine. Begin to inject as soon as the needle enters the papillar, and inject continuously as the needle proceeds into the incisive foramina, or until about one-half an inch of the needle disappears, and then inject about six to eight drops.

Before taking up the preparation of the solution, syringe, needles, etc., there are a few scattered points that are well to bear in mind:

1. In the lower jaw, don't expect every mandibular injection to be successful.

2. When you make this injection, keep as close to the bone as possible, with syringe and needle not pointing upward or downward, but on a horizontal plane about three-eighths of an inch or one c. centimeter above the acclusal surface of the molar teeth.

3. If the first injection does not work, give another, and if necessary, another. Rarely more than two are ever necessary. If you observe strict asceptic precautions, six or eight cubic centimeters may be injected with safety.

4. In about ten per cent of the cases of mandibular injections in the lower jaw, the buccal side of the first molar will not be anesthetized. In such cases, give the buccal injection or inject locally, if it is not an infected case.

5. In the tuberosity injection, sometimes the first molar is not completely anesthetized. In such cases, give either an infraorbital or inject locally on the buccal side if it is not an infected case.

6. In some cases a black and blue spot may appear under the eye after an infraorbital injection, or upon the cheek after a tuberosity injection. These are of no consequence and will disappear in a few days, or more quickly if the violet ray is used.

7. Don't inject either locally or for conductive anesthesia into an infected area.

8. In giving the conductive anesthesia, it is not necessary to use any force and unnecessary therefore to bend or break any needles.

I use, for all my work, a Freienstein syringe. This is a glass barrel syringe with an asbestos packing. It holds 2 cubic centimeters, and comes with two hubs, one for the heavy needle No. 1 0.90 m. m. in diameter, 42 m. m. long for the mandibular injections, and the other for the needle No. 17 0.47 m. m. in diameter, 42 m. m long for the other injections. I find this a handier syringe than the Fisher. I first used a Fisher syringe, and then used this one, and I like this the better of the two. The Fisher is an excellent syringe made of all meal and glass, and holds about four cubic centimeters.

I use two Schimel needles,—the heavier one for the mandibular injections, and the longer, slender one for all other injections. They are steel needles. If a new needle is used each time, and care is exercised, there is practically no danger of their breaking.

The syringes are guarded against infection and the need for boiling by not injecting all the solution into the tissue, so that when the needle is withdrawn, a small amount of solution still remains in the barrel and is then ejected If all the solution is injected into the tissue, there is a liability in withdrawing the needle from the tissue to draw some blood or mucous into the barrel and necessitating boiling it. For that reason, don't inject all the solution into the tissue, leave a few drops to eject after the needle is withdrawn.

The syringes are washed off in hot running water. dried, and then put into a solution of alcohol and glycerine. I use about one part glycerine to ten of alcohol. Some men use one part glyceriine to four of alcohol, some three parts glycerine to seven of alcohol. All are efficient and keep the syringes steril. I use the glass dish with the glass cover which holds the syringes lying down. Other men use glass jars, specimen jars, and have little metal stands inside, upon which to hang or hold the syringes. The solution of glycerine and alcohol should be changed about once a month.

By using just two sizes of needles and using a new needle each time, we simplify our technic, are sure to get a sound, strong needle and one that is neither clogged or rusty.

In the New York Throat, Nose and Lung Hospital, in the oral surgery clinic, they use one set of needles a week, boiling them after each injection with wires in the needle, and so far they have never broken a steel needle. Some men prefer the platinum and iridium needle. For those who do, they are the needles to use. Personally I feel safe when I use a steel needle.

If you use a Fisher syringe, or any other syringe that has a glass barrel, and solid metal plunger, don't forget to remove the plunger or piston when you boil the syringe. If you do forget, you are almost certain to crack the glass barrel.

## THE SOLUTION.

I use a two per cent solution—Novocain suprarenin solution, using one E tablet to 1 c. c. of normal salt solution.

The normal salt solution is prepared by dissolving one sodium chloride tablet in four ounces of sterile water, preferably distilled water. The sodium chloride tablets come bottled, prepared by any of the standard medical houses, such as Parke-Davis, Fraser, John Wyeth, Sharp & Dohme, Lilly, etc.

The normal salt solution is kept in a Jena glass bottle. Jena glass in an alkaline-free glass. It is claimed that any alkali is liable to cause deterioration in the novocain suprarenin. This bottle also has a glass dust cap which protects the tip of the glass bottle from becoming contaminated with dust.

Some men advocate the use of the Ringer tablets which contain the four or five principal salts of the blood, and with these tablets make the solution as I have the normal salt solution, with which to dissolve the novocain suprarenin tablet.

To continue, with my syringe, in the glycerine and alcohol solution, in the glass dish, the normal salt solution or Ringer solution in the Jena glass bottle, with the little porcelain receptacle for boiling the solution, and the E tablets containing the novocain and suprarenin, we are ready to prepare our solution.

First, we take our syringe out of alcohol and glycerine solution, wash off the glycerine and alcohol in sterile water.

Second, boil our needle and hub.

Third, fill the porcelain receptacle with normal salt solution and boil it for a few minutes. This sterilizes the receptacle.

Fourth, then fill and eject our syringe with the just boiled normal salt solution three or four times. This washes out whatever glycerine and alcohol has gotten inside the barrel. Throw out what remains of the solution.

Fifth, then pour into the porcelain receptacle about two and one-half c. c. of the normal salt solution. There are black readings on the porcelain receptacle indicating the 1, 2, 2 1-2, 3, 4 c. c. Boil the salt solution.

Sixth, then put in two E E tablets. One tablet for each cubic centimeter of normal salt solution or Ringer solution makes a two per cent novocain solution. In putting the tablets in, care must be taken that neither the fingers or hand comes in contact with the tablets. Just hold the rubber stopper with one hand and the small bottle with the other, and with the stopper at the mouth of the bottle, let one tablet at a time drop into the porcelain receptacle. Boil this over the alcohol lamp for a minute, then fill the syringe and then screw on hub with the needle, and withdraw the wire with a pair of pliers. Hold the syringe on its side, and look for air in the syringe, then turn it up and get rid of the air.

At each step be careful not to contaminate either the syringe, needles or solution with anything.

If the solution, after boiling in the porcelain dish, is in the slightest degree discolored, throw it away and start all over again. Once in a while, with the utmost care, the solution will discolor. But the most frequent cause of discoloration, indicating deterioration, is carelessness of preparation of the solution.

The advantages in using the novocain suprarenin solution as I have outlined are many:

1. You know exactly what you are using and the amount you are using.
2. The solution is prepared fresh each time and you are absolutely sure of no deterioration or contamination.
3. The using of one E tablet to each c. c. of normal salt solution simplifies the technic and gives you a 2 per cent solution every time.
4. There are practically no toxic effects, and little if any reaction.
5. The only effect noted is sometimes a slight acceleration of the pulse and a little perspiration on the forehead. This is due to nervousness and sometimes to the suprarenin, which lasts about two to three minutes.

The Fisher syringe may be bought through any dental supply house and costs about $4 without the various attachments which are not used by the dentist.

The Freienstein may be bought of Hans Hydemann, 285 St. Nicholas Ave., New York City. This costs, with extra glass barrel, $2.50.

The E tablets may be bought through any dental supply house or Farbwerke Hoechst Co., 34 Beach Street, New York City. The porcelain sterilizing dish may be secured from the same concern.

The bottle for the normal salt solution is No. 930-250 C. C. costs 60 cents, glass cup No. 948. Dish for syringe No. B. 1744A-130 M. M. 60 cents.

Dish, for tooth picks with cotton wound around the end B. 1745 100 M. M. 50 cents.

These can all be secured from Eimer and Amend, 18th St. & 3rd Ave., New York City.

## BOOKS.

Lederer—Tooth Extraction and Local Anesthesia.
Fisher—Local and Conductive Anesthesia.
Thoma—Oral Anesthesia.

# THE TECHNIC OF ROOT RESECTION AND ROOT AMPUTATION.

By Alonzo Milton Nodine, D. D. S.,

ORAL SURGEON AND DENTAL CONSULTANT FRENCH HOSPITAL NEW YORK CITY, ASST. DENTAL RADIOLOGIST N. Y. THROAT, NOSE AND LUNG HOSPITAL.

With increasing interest and profit dental surgery is giving attention to the X-Ray, conductive anesthesia, root canal filling, and root resection or root amputation. They are quite the foundation stones or backbone of sound dental surgery. Each assists and is responsible for the others to a remarkable degree. Three of them have received careful and extensive attention at the hands of many men. The other, root resection or root amputation, has been largely left to the specialist and the expert. Expositions of the technic of these most valuable and successful operations are not found described so frequently in dental literature. While the majority have seen excellent radiographs, root fillings and demonstrations of conductive anesthesia, few have seen successful root resections or root amputations.

Root resection is the removal of a section of a root. And root amputation is the removal of the whole or larger part of a root. These terms are neither arbitrary nor absolute but quite accurately differentiate the two.

Root amputation is resorted to largely in cases of multi-rooted teeth whose roots have been exposed and the alveolus absorbed. Such roots, if not amputated, are a continual source of irritation and, because unprotected by gum and bone, they accumulate either calculus or muccoid deposits. Such teeth are found most frequently associated with Riggs Disease.

Root resection is the means of curing that large class of cases in which chronic apical infection exists. Such cases are usually found to have a limiting wall made of granulation tissue called a granuloma. Again, in cases in which the pathological destruction has extended until cystic degeneration has set in, if enough alveolar bone remains, it is necessary to resect the roots down to sound bone in order to preserve the tooth. Roots in which it has been found impossible to reach the apex and properly fill the canals, the canals may be filled as far as possible and the remaining part of the root resected to prevent future apical infection. In whatever cases root resection is called for, the technic is about the same.

## TECHNIC OF ROOT AMPUTATION.

After completing all necessary work on the tooth to be operated upon, such as filling the root canals, placement of fillings, inlays or crowns, a good radiograph should be taken of the tooth. This will prove an additional guide. After painting with iodine the gums around the tooth to be operated upon, a little 2 per cent novocain suprarenin solution may be injected locally. If the tooth is loose, it is advisable to brace it with a little modeling composition.* Select a cross-cut fissure bur; place it in the hand piece either right angle or straight according to the location of the root. Insert the bur between the bifurcation and, with a slight sawing motion, cut through the root in a slanting direction toward the occlusal surface. Having started to cut through in one direction, the bur may be removed from the cut, and then started from the opposite side of the root. When the root is completely severed it may be removed with a small pair of root forceps or root pliers, gently separating any adhering gum with a knife. Any ragged pieces of gum are cut away with the gum scissors and the socket painted with iodine. The part of the tooth from which the root has been amputated is smoothed and rounded off and polished with stones and disks.

In some cases a sharp chisel with two or three blows of the mallet will amputate the root quicker and neater than can be accomplished with the fissure bur. Or the bur may be used to start the cutting and direct the line of cleavage and the chisel can be used to complete it.

## TECHNIC OF ROOT RESECTION.

From anatomical considerations and accessibility, the upper and lower incisors are the teeth upon whose roots resection may be per formed with least difficulty. They are therefore the ones recommended to be selected for root resection by those who are about to begin this work.

The upper and lower canines are a little more difficult. The second upper bicuspid and lower bicuspids next, with due regard and care for the maxillary sinus and mental foremen. The upper first bicuspid, the upper first molar, the lower first and second molars and the upper second molars, range in difficulty in the order named. And then follows the upper and lower third molars whose roots may be resected only under the most favorable conditions which can be easily imagined but difficult to realize, and they are therefore not suggested for this operation.

It is well to make a cross section of the jaw of a dried skull in the region of all these teeth. By this, means a good idea of the anatomy will be gained and a knowledge of the thickness of the bone about the teeth upon which this operation is performed.

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*Adair: Practical Oral Hygiene, Prophylaxis, and Pyorrhea Alveolaris.

Secure a good radiograph to assist in determining the desirability or advisability of root resection. Having so decided, fill the root canals as far as possible with gutta percha and then procure another good radiopraph to show how far the root canals are filled or the extent of the infection, or the size of the granuloma or cyst, or the location of the perforation and the relation of the root or roots to other teeth and any important anatomic structure.

Conductive or infiltration anesthesia with novocain and suprarenin is the pre-eminent anesthesia for this operation. Governed by local conditions in the upper anterior teeth centrals and laterals, infiltration anesthesia or the infraobital injection with an incisive injection may be used; on the upper canines and bicuspids, infiltration or the infraobital injection and anterior palatine and incisive injection or locally on the palantine side of each root and sometimes a tuberosity in conjunction with it. The lower incisors, infiltration or a mental injection on both sides or mandibular injection on one side and mental on the other will be employed.

Nervous patients may be given two Bromural tablets twenty minutes to half an hour before the injection.

Having sprayed the patient's mouth with a good antiseptic solution or normal salt solution, sterile gauze is packed under the lips—for example, let us say, an upper bicuspid, as far back as the molar teeth, to prevent any saliva gaining entrance to the wound, Assuming that the anesthetic has been given and the usual tests applied to determine that it is having its effects upon the jaw, with the jaws closed, the site of the incision in the gum is painted with iodine. With a good sharp knife a crescent-shape incision is made with the lowest part of the incision a little below the level at which the root is to be resected and the centre of the incision in the medium line of the tooth. This incision will usually be about three-fourths of an inch from start to finish. A periostial elevator is then used to separate the periostion from the bone toward the apex of the tooth for about three-eighths to one-half inch. A four or six pronged retractor is inserted well into the flap and held firmly up out of the way. Sterile gauze may be packed into the wound to wipe away the blood and control the slight hemorrhage.

The outlines of the root may now be seen. Chisels and mallet may now be used to remove the outer covering of bone and uncover the root. This should be accomplished without danger of going further than is necessary and destroying the landmarks. After the root is uncovered, if nature has not accomplished this by pathological process, chisel a space around and above the apex. Sufficient space must be obtained so that when the buccal root is resected, assuming we are operating on a first upper bicuspid, there will remain room in which to see, work, and remove the palatal root.

Having cleared this space, a chisel (bevel toward the apex) is then placed on a level with the plane at which the root is to be resected, and with one or two blows, this apical section is severed and may be removed with any suitable instrument. Then the cavity is curetted and all pathological tissue is removed. It may require a little more chiseling to secure access to the palatal root and to obtain room in which to see it and free it from any obstructing bone. Then with the chisel at the desired level, two or three sharp blows of the mallet and the palatal root is resected. This is removed and its cavity is curetted of any pathological tissue. The whole field of the operation may be syringed with normal salt solution and then dried as well as possible for inspection. The sharp edges of the root ends may be smoothed off with a surgical bur and the original opening of the bone is smoothed with chisels or curettes. The wound is again syringed with normal salt solution and again dried with sterile gauze for inspection.

There are two methods of treating such wounds. They either may be packed with gauze or sutured. This will depend largely on the condition of the wound and the extent of the infection, and sometimes the location. If it is decided to pack the wound, it is painted with a solution of iodine; novocain powder or orthoform powder or a mixture of the two may be put in the wound, to allay any post-operative pain, and upon this tightly pack iodoform gauze. The first packing should be tight, as there is liable to be some hemorrhage when the effect of the suprarenin has worn off. Also tight packing will check the slight hemorrhage that accompanies work of this kind.

The patient should be given four to six Trigemin capsules, two to be taken three times a day if there should be severe pain. The patient is instructed to apply a cold compress fifteen minutes out of each hour to reduce or prevent swelling, and given a good mouth wash. The patient is also to be instructed not to eat any meat for a day or so and take a saline cathartic the following morning. The patient should return in a day or two to renew the packing. The packing is then removed, and the wound irrigated with normal saline solution, then painted with iodine and the wound packed with iodoform gauze. This procedure is repeated every three or four days, using a shorter piece of gauze each time until the wound is healed, which will be in three to four weeks; or the oral surgeon may perform the operation of root resection and the after treatment may be completed with reasonable safety by the dentist.

If it is decided to suture the wound, it is irrigated with normal salt solution and dried with sterile gauze and the wound is painted with iodine and then freshened with a curette in order to get a good blood clot. Then the crescent-shape flap is held with a pair of rat-tooth pliers, then a circular needle held with a pair of artery forceps or needle forceps with either silk or horse hair and with about three interrupted stitches, the edges of the wound are brought together. Care should be taken that the needle goes into sufficient tissue on both sides of the wound, so that the sutures will not pull out. The stitches may be removed in about four days or five days.

Care must be taken so that the roots on either side of the one to be operated upon are not injured and the nerves dentalized. All instruments, gauze and dressings must be absolutely sterile.

The technic I have outlined is in accord with the most up-to-date surgical procedure. With it you have an opening large enough to see exactly what you are doing, which can not be claimed for the technic in which a small opening is made and the root resected with a bur. You may also be sure that you have removed all infected tissue.

The instruments required are a knife, two chisels—one about one-eighth of an inch wide and one about three-sixteenth inch, and two gouges about the same width, a periostal elevator, mallet, surgical burs, small circular needles, a pair small artery forceps or needle forceps to hold the needle, a gauze-packer three-eighths or one-half inch iodoform gauze, and one or two four and six prong wound hooks or retractors.

The instruments used in this operation are those designed for this work, or suitable instruments may be selected from those known as mastoid instruments.

8 W. 40th St., New York City.

## CLINIC OF DR. CHAS. L. ALEXANDER, CHARLOTTE.

Dr. Chas. L. Alexander demonstrated with the aid of models and drawings a number of original ideas, which he has used for a period of years in his practice. These methods included the gold inlay and developments sugested by them, such as the Alexander hood and saddle crowns. He showed the use of these hoods and crowns as abutments in crown and bridge-work and as a band in holding teeth together, which have become loose from the ravages of pyorrhea, and as supports in holding teeth permanently in place in orthodontia work, where ultra conditions demanded mechanical assistance.

Dr. Alexander also gave the technique of the gold inlay as first originated by him, including his plastic gold inlays, which he considers a great time saver and superior to those made by the cast method. He also demonstrated the superiority of his original matrix method of making the hood crowns over the cast method.

The technique employed by him in manipulating the gold plate to conform to the tooth revealed a simplicity which makes it possible for any dentist to construct one of these crowns. This method consisted of cutting a piece of .003 gold plate the proper size, preferably square in shape, a corner of which is rounded off and then the piece of gold plate is placed upon a soft blotting paper and formed to the required concavity by pressing and rolling upon it with the round head of an instrument or excavator handle. The gold plate which is now the base of the proposed hood, is then placed upon the tooth which has previously been prepared. The operation is further completed by burnishing, trimming and providing the piece with pins, post or staples as demanded or desired. After a perfect adjustment has been secured, the hood is reinforced by casting or by using the matrix method.

Dr. Alexander then showed his method of setting up teeth (in making a plate) on vulcanizable gutta percha, thus eliminating the old wax method. However, before proceeding with this, the teeth were set up on a trial plate of wax, and where a full denture is required, one of the models with the trial plates is not disturbed until the teeth of the other plate are occluded to it. This technique consisted of drying out the model thoroughly, then coating it with a solution of rubber and chloroform, made by dissolving vulcanite rubber in chloroform. Then a piece of vulcanite rubber is heated and pressed upon the model, forming a base plate. To this is added a rim of vulcanizable gutta percha, to which the teeth are adjusted. Then the pink rubber is placed around the labial aspect as desired, and the entire pink rubber restoration and base plate is given a smooth finish by the application of a heated spatula. After this the rubber form is covered with tin foil, invested and vulcanized. Dr. Alexander stated that two or three of these rubber forms could be placed in one flask and vulcanized at the same time. He also stated that the plates made in this way are not subjected to pressure as they are when made by the old method, therefore, a more perfect fit is secured. A trial of this procedure, he said, would prove the truth of his contention.

Dr. Alexander then exhibited a model showing a method of getting a perfect adjustment of the post to the crown and root where the root is out of alignment. The technique was very simple and was accomplished by almost severing the metal post with a saw or disk at a point at the base of the crown. The post was then placed in the porcelain crown and forced to its position in the root, thus securing the pròper angle, which is retained by flowing a little 18-1K gold solder at the point of severance. The idea was unique and effective.

Dr. Alexander next demonstrated an orthodontia appliance, which is a modification of the Jackson appliance. This appliance, he showed, could be kept in position by wiring it to the teeth, instead of being held in place by the extending arms or fingers, as in the case of the Jackson appliance He stated that his method makes it impossible for the patient to practice deception by wearing the applicance in his pocket. To protect the teeth from decay, the parts coming in contact with the teeth were coated with copper cement, thus making it safe to allow the appliance to be worn without removing for two or three months.

## CLINIC OF DR. F. L. HUNT, ASHEVILLE.

In presenting to you the subject, "The Technique in the Systemic Treatment of Pyorrhea Alveolaris with Emetine Hydrochloride," it must be distinctly understood that no claim of a cure is made. If emetine hydro-chloride is of value in the treatment of pyorrhea alveolaris we should unquestionably avail ourselves of its use, and it is the belief of many who have given it thorough study that emetine hydrochloride is a valuable agent in the treatment of pyorrhea and your clinician subscribes to that belief. It is a well known fact that much time and effort, on the part of the dental profession, has been spent in futile efforts to cure pyorrhea. From clinical observations, made through a period of time far too short to be conclusive, one is led to believe that there is a great deal of virtue in the emetine treatment, notwithstanding the fact that many of the so-called pyorrhea specialists are very strong in their condemnation in the use of the drug. We do know that emetine is an amoebacide and it has been demonstrated with reasonable clearness that the amoeba is nearly always present in the case of pronounced pyorrhea alveolaris. It is not claimed that the endamœbae is the cause of pyorrhea, but it is presumed that its presence does hinder the restoration of affected tissue to a normal condition. Such being the case, the destruction of the amoeba becomes desirable, but it must be remembered that pyorrhea alveolaris cannot be cured without resorting to thorough instrumentation and the removal of the predisposing cause. In view of the fact that the logical method of administering emetine is by a hypodermic method, and in view of the fact that the dental profession runs the risk of severe criticism on the part of the medical profession if a faulty technique should cause any serious results, I appear before you today.

It is evident that strict sterilization must be maintained throughout the administration, hypodermically, of the drug. Our good friend, the Captain, has been good enough to develop a case of pyorrhea and has submitted himself for treatment at this time. While I am sterilizing the hypodermic syringe and the emetine you may have an opportunity of studying the endamœbae, a specimen of which we have mounted and placed under the microscope. It is not always an easy matter to mount a slide, stain and find the amoeba in the remainder of the short space of time which has been allotted to me. The microscope is properly adjusted and focused, therefore, if you will kindly not move the adjustment the endamœbae may be studied by each of you.

The only proper method of sterilizing the syringe is by boiling. after which grain alcohol is drawn into the syringe and forced out; this is followed by drawing boiling water into the syringe and thoroughly washing out, after which the emetine dissolved in boiling water is drawn into the syringe and all air carefully forced out as you well know. In order to lessen the pain incident to the insertion of the needle the point may be passed through carbolated vaseline, which acts as a lubricant. This point was recently given me by Dr. Netherland and I consider it a valuable one. The emetine is injected either in the arm or leg after the part has been thoroughly sterilized by thoroughly scrubbing with pure alcohol.

We will now try the lubricated needle in the Captain's arm. "Kindly look the other way, Captain, so that you won't know when I insert the needle."

"Did you feel any pain, Captain?" "None whatever, replied the Captain. You see the vaseline acts as a very good lubricant. After carefully removing the needle these little sterile gauze pads may be placed over the point of insertion and held in place by a narrow strip of adhesive plaster. These sterile gauze pads may be easily prepared in your own office and kept on hand.

As we now have a few minutes time left we will endeavor to make a slide from the pus in the Captain's mouth. We will sterilize the glass slide and place on it the infected pus. This is now fixed to the slide by passing quickly through the flame. A few drops of carbo-fuchsin is poured over and allowed to remain for a few seconds, after which it is washed off. This is followed by pouring over a few drops of menthelyn-blue, which is allowed to remain for a few seconds, then this is washed off. Carefully dry and your slide is now ready for examination.

If you use the low-power lens the location of the field will be simplified, though with the low power you will be unable to study the amoeba. After the field is located the high-power oil immersion lens is necessary for a study of the amoeba. We are fortunate in locating the endamœbae which demonstrates its presence in the pyorrhea pockets in the Captain's mouth.

I thank you for your kind attention.

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The clinics of Dr. Clinton C. Howard, of Atlanta, Ga., have been printed in pamphlet form and will be mailed by him to members of the Society.

## CLINIC OF DR. GEO. K. PATTERSON, OF WILMINGTON.

### HOW TO OBTAIN A MORE CORRECT PLATE BY SETTING UP TEETH ON A VULCANITE BASE.

The subject of my clinic is "How to Obtain a More Correct Plate by Setting up Teeth on a Vulcanized Base."

You see before you a model, a vulcanized base plate, or "toothless plate" and a plate with teeth set up and vulcanized, half in vulcanizable rubber and half in palate rubber.

Now, after having an impression of the mouth and model run and separated, I trim my model, relieving the pressure where the stress is too great and make it just as I would like the plate to come out. I then go ahead and vulcanize my "toothless plate," making it thin and do not vulcanize so long, for the second time will get the desired effects.

By doing this you have your plate made, so to speak. You now know whether or not your plate will fit before you put the teeth on it, this being one of the advantages. Another advantage is in the fact that you have something that is firm, upon which to set up your teeth and can do so right in the mouth, if desired. The teeth on the plate before you that are vulcanized in palate rubber show very plainly how readily the teeth will change their positions when tried in the mouth, if they are on a wax base plate, owing to the temperature of the mouth and the softness of the wax as compared with rubber.

I hope you all may gather the thought that I have tried to bring before you. I have found it to be of a great advantage to me in my plate work.

## CLINICS OF DR. THOS. P. HINMAN, OF ATLANTA, GA.

"Manipulation of Plastics." Amalgam, Oxyphosphates, Synthetics.

1. Selection of material.
2. Care of materials.
3. Mixing plastics.
4. Manipulation and finishing.

"Treatment and Filling of Root Canals."

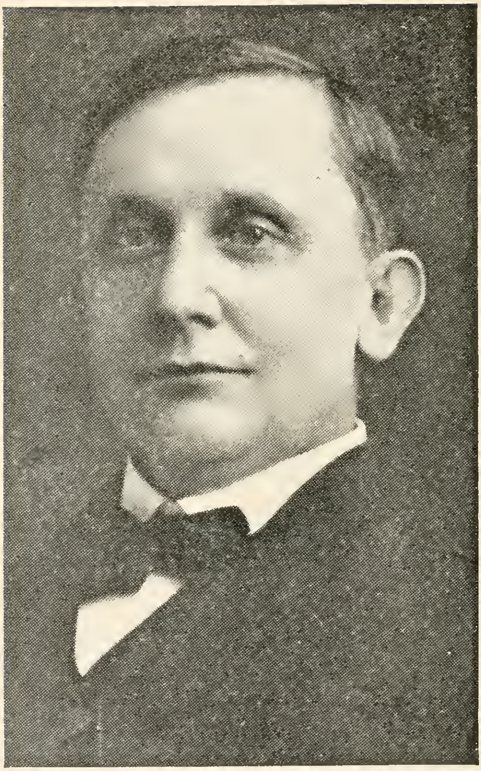
1. Care of instruments.
2. Opening pulp chamber.
3. Opening the canals.
4. Treatment of the canals.
5. Filling the roots.
6. Callahan method.

## CLINIC OF DR. J. H. WHEELER, GREENSBORO.

"Cavities, and Carving in Amalgam Work."

## CLINIC OF DR. J. W. STANLY, WILMINGTON.

"The Proper Way to Mix Amalgam."



Dr. D. L. James.